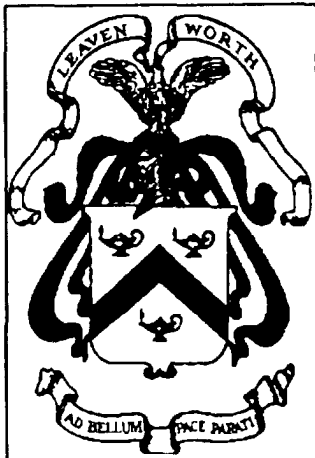


S310A



Total Army Training System Courseware

COMBAT OPERATIONS

27
CREDIT HOURS

CENTER FOR ARMY TACTICS (CTAC)

U. S. ARMY COMMAND AND GENERAL STAFF COLLEGE
FORT LEAVENWORTH, KS

S 310A/8

SUBCOURSE

1	United States Army Doctrine	4
2	Logistics in US Army Doctrine	5
3	Air-Ground Operations	1
4	Synchronization Prerequisites for Corps and Division Operations	15
5	Subcourse Examination	2
	TOTAL	27

IMPORTANT!! Read and Post

S310A/9

U. S. ARMY COMMAND AND GENERAL STAFF COLLEGE
FORT LEAVENWORTH, KS 66027

COMBAT OPERATIONS
ERRATA TO COURSE BOOK

CHANGE ALL REFERENCE FROM ACADEMIC YEAR 98 TO ACADEMIC YEAR 99. THE
COURSEWARE IS A REPRINT OF THE 98, PER THE COURSE POINT OF CONTACT AS REQUEST-
ED.

23APRIL981 BECKY ROGAN / COM 913-758-3366, DSN585-3366

P R E F A C E

“Competence is an integral part of skill in Battle Command. It means knowing our profession, the craft of it all the nuts-and-bolts details. It is inseparable from leadership. knowledge of the craft of our profession lets battle commanders execute their command responsibilities better because they can use all available tools. In sum, competence is quite simply knowing your job.

It means knowing the technical capabilities of your unit-weapons, fogistics, electronic warfare, aviation and movement on terrain. Tactics often is determined by the capabilities and limitations of weapon systems and how quickly units can move from one place to another ”

General Frederick M. Franks Jr., US Army, Retired

S310A, Combat Operations, is designed to expose you, the professional soldier, to the tools you need to plan and conduct warfare. Commanders and staff must not only understand the technical aspects of the tools but they must understand how these parts fit together on the battlefield. Only then can they begin to focus combat power in relationship to time, space, and purpose at the decisive point.

Success in combat comes from the aggressive, calculated, and decisive employment of combat power. Although two units may have equal combat potential, the commander lvho best employs the Full means at his disposal will have the greater combat pov,xr. To win, the comm,ander engages the enemy in a matter that is focused, retains the initiative, and offensively masses strength against enemy weakness while protecting friendly forces.

Tactics, the art and science of employing available means to means battles and engagement will be your primary focus during S3 IOA. The new knowledge you gain and the enhanced skills you develop contribute directly to your tactical and technical proficiency, your ability to make sound and timely decisions, and your competence to employ units in accordance with their capabilities.

Combat Operations is one course divided into two subcourses. S310A, presents instruction on doctrine, logistics, air ground operations, and tactics, S310B, presents instruction on intelligence preparation of the battlefield and the tactical decisionmaking process. S310.1 and S310B serve as the basis for future tactics instruction during the non-resident Command and General Staff Officers Course (CGSOC). This course is the initial attempt at aligning the tactics instruction for the United States Army non-resident course with the resident CGSOC under the Total Army School System (TASS). This course replicates the resident course, C310, Combat Operations.

This course relies on individual study to accomplish the terminal learning objectives. The instruction is designed to develop your reasoning and decisionmaking ability.

NOTE: The words “he” or “his” when used in this publication represent both the masculine and feminine genders unless otherwise specifically stated.

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COMBAT OPERATIONS**REFERENCES**

The following references were used in the development of this subcourse. You will not receive all of these references with your courseware; they are not necessary for your successful completion of the subcourse. This list is provided so that you will know what references to consult should you want additional information in a particular subject area.

FM 5-100	<i>Engineer Combat Operations</i> , Nov 88
FM 6-20	<i>Fire Support in the Airland Battle</i> , May 88
FM 6-20-10	<i>Tactics, Techniques, and Procedures for the Targeting Process</i> , May 96
FM 6-20-30	<i>Fire Support For Corps and Division Operations</i> , Oct 89
FM 6-20-40	<i>Tactics, Techniques, and Procedur For Fire Support for Brigade Operations (Heavy)</i> , Jan 90
FM 17-95	<i>Calvary Operations</i> , Sep 91
FM 34-1	<i>Intelligence and Electronic Warfare Operations</i> , Sep 94
FM 34-2	<i>Collection Management and Synchronization Planning</i> , Mar 94
FM 34-2-1	<i>Tactics, Techniques and Procedures for Reconnaissance and Surveillance and Intelligence Support to Counterreconnissance</i> , Jun 91
FM 34-8	<i>Combat Commander's Handbook on Intelligence</i> , Sep 92
FM 34-10	<i>Division intelligence and Electronic Warfare (IEW) Operations</i> , Nov 86
FM 34-10-2	<i>Intelligence and Electronic Warfare Equipment Handbook</i> , Jul 93
FM 34-80	<i>Brigade and Battalion Intelligence and Electronic Warfare Operations</i> , Apr 86
FM 34-130	<i>Intelligence Preparation of the Battlefield</i> , Jul 94
FM 63-2	<i>Division Support Command, Armored, Infantry, and Mechanized infantry Divisions</i> . May 91
FM 63-3	<i>Corps Support Command</i> , Sep 93
FM 63-20	<i>Forward Support Battalion</i> . Feb 90

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FM 63-21	<i>Main Support Battalion.</i> Aug 90
FM 71-2	<i>The Tank and Mechanized Infantry Battalion Task Force.</i> Sep XX w/C1 dtd 17 Aug 94
FM 71-3	<i>The Armored and Mechanized Infantry Brigade,</i> Jan 96
FM 71-100	<i>Division Operations,</i> Aug 96
FM 90-2	<i>Battlefield Deception,</i> Ott 88
FM 90-20	<i>J-Fire: Multi-Service Procedures for the Joint Application of Firepower,</i> Feb 94
FM 90-21	<i>JAAT: Multi-Service Procedures for Joint Air Attack Team Operations,</i> Oct 91
FM 100-5	<i>Operations,</i> Jun 93
FM 100-9	<i>Reconstitution,</i> Jan 92
FM 100-15	<i>Corps Operations,</i> Oct 96
FM 100-103-1	<i>ICAC²: Multiservice Procedures for Integrated Combat Airspace Command and Control.</i> 94
FM 100-103-2	<i>TAGS: Multiservice procedures for the Theater Air-Ground, System,</i> Oct 94
FM 101-5	<i>Command and Control for Commanders and Staff,</i> Jul 93 (Final Draft)
FM 101-5-1	<i>Operational Terms and Symbols,</i> Oct 85
ST 22-2	<i>Writing and Speaking Skills for Senior Leaders,</i> Apr 91
ST 63-1	<i>Division and Corps Logistics,</i> Jun 96
ST 100-3	<i>CGSC Battle Book.</i> Jun 96
ST 100-7	<i>OPFORD Book,</i> Apr 96
ST 101-5	<i>The Tactical Decision making Process.</i> Feb 96
ST 101-6	<i>G1/G4 Battle Book,</i> Jul 96

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COMBAT OPERATIONS

Advance Sheet

GOAL

S310A, *Combat Operations*, is the foundation for all combined arms instruction within the non-resident CGSOC. S310A will provide a basis for key doctrinal concepts and an understanding of how commanders and their staffs plan and conduct combat operations at the tactical level of war.

At the end of S310A, you will be competent in:

- brigade through corps level organizations, capabilities, and limitations;
- Army operations doctrine and its application at brigade through corps level;
- battlefield operating systems and the tactics, techniques, and procedures for employing brigade through corps forces within the battlefield framework;
- CSS procedures and techniques;

SCOPE

The four lessons in S310A will analyze how corps and divisions fight and sustain themselves on the battlefield.

Lesson 1, United States Army Doctrine, begins to develop your understanding of US Army war-fighting doctrine. The readings and a case study will help you develop an appreciation of how the US Army fights and why it fights this way.

Lesson 2, Logistics in U.S. Army Doctrine, builds on the doctrinal foundation laid during lesson 1. During lesson 2 you will become familiar with the doctrine, tactics, techniques, and procedures that guide the sustainment of tactical operations.

Lesson 3, Air-Ground Operations, covers joint US' Army-US Air Force doctrine for integrating combat air power into combined arms operations.

Lesson 4, Synchronization Prerequisites for Corps and Division Operations, ties the three previous lessons together and covers the synchronization prerequisites for US Army corps, divisions and brigades. Synchronization prerequisites incorporate combat, combat support (CS), and combat service support (CSS) asset capabilities, optimum positioning, and movement requirements that ensure the focus of combat power at the decisive point,

Lesson 5, Subcourse Examination, will measure how well you understand the material presented in the subcourse.

After studying doctrine and tactics, you will learn the common techniques and procedures used to plan combat operations during M310B, *Combat Operations*.

TERMINAL LEARNING OBJECTIVES

The subcourse has two terminal learning objectives (TLOs). Each TLO has several enabling learning objectives (ELOs), which support achievement of one or more aspects of the performance standard for the associated TLO. ELOs are described on the advance sheet of the lesson in which it is accomplished.

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A. TASK: Explain United States Army operations doctrine.

CONDITION: Given requirement and a case study or situation

STANDARD: The explanation must-

- Address the interrelationship of the three levels of modern warfare; address the interrelationship of the components of combat power; relate the principles of war and the tenets of Army operations; relate the battlefield framework and the battlefield operating systems; address the concepts of mission orders and nesting; and address the general doctrine for offensive, defensive, and retrograde operations IAW FM 71-100, FM 100-5, FM 100-15 and selected readings.
- Address how Air Force support is synchronized with Army ground operations IAW FM 100-103-2
- Address the tactical logistics functions that support tactical- and operational-level offensive, defensive, and retrograde operations IAW FM 100-5.
- Relate how corps, divisions, and brigades conduct and sustain combat operations IAW FM 71-100, FM 100-15, ST 63-1, and ST 100-3.

LEVEL: Comprehension

PIE Phase I Objective Numbers: 1a, 1b, 1e, 2a, 3e, 5b, and 5c

B. TASK: Explain the structure and missions of logistics organizations at the tactical level of war.

CONDITION: With references, given a situation and a written requirements.

STANDARD: The explanation must-

- Identify those company-sized units that exist in the heavy division support command.
- Identify those units that normally operate in the corps support group (forward) that is in support of a divisional sector.
- Differentiate between the composition and missions of the corps support group (forward), and the corps support group (rear).
- Determine the capability of combat service support units at the tactical level of war
- Be IAW FM 100-5, ST 63-1, and ST 101-6

LEVEL: Comprehension

PJE Phase I Objective Numbers: 1a and 1e.

EVALUATION**1. GENERAL**

CGSC Circular 351-3, CGSC's NonResident Catalog, provides guidelines for the evaluation of student academic performance. There is no intent here to repeat CGSC directives described in the reference, but only to specify how this subcourse implements those policies.

2. GRADES

a. General. You will receive one letter grade from the Directorate of NonResident Studies (NRS) that will summarize how well you accomplished the subcourse goal.

b. Grades. Final grades are awarded according to the following point scale

<i>Points</i>	<i>Grade</i>	<i>Description</i>
90 to 100	A	You have exceeded the subcourse goal.
80 to 89	B	You have met the subcourse goal.
70 to 79	C	You have marginally met the subcourse goal.
Less than 70	U	You have not met the subcourse goal.

These final points are determined by applying the following weights to the score you receive on the multiple choice exam.

<i>Method</i>	<i>Weight (percent)</i>	<i>Technique(s)</i>
<i>Exam</i>	100	Multiple Choice

Figure 1. S310A evaluation.

c. You will receive a final subcourse grade on a Student Evaluation Report (CGSC Form 128). To receive a final score and proceed to the next phase, you must have achieved a passing score on the multiple choice exam. If you do not receive a passing score on the multiple choice exam, you will be sent another exam which will test the same TLOs and ELOs. Refer to CGSC Circular 351-3, the CGSC nonresident catalog, for student assistance numbers and for the academic standards of the course.

COURSE MATERIALS

1. Student Advance Issue. The publications listed below will be needed for completion of S310A.

- a. FM 6-20-10, Tactics, Techniques, and Procedures for the Targeting Process, Mar 96.
- b. FM 63-2, Division Support Command, May 91.
- c. FM 63-3, Corps Support Command, Sep 93.
- d. FM 63-20, Forward Support Battalion, Feb 90
- c. FM 63-2 1, Main Support Battalion, Aug 90
- f. FM 63-23, Aviation Support Battalion, Jun 96
- g. FM 71-2, The Tank and Mechanized Infantry Battalion Task Force, Sep 88, with change 1 dated 17 Aug 94.
- h. FM 71-3, Armored and Mechanized Infantry Brigade, Jan 96.

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- i. FM 71-100, Division Operations, Aug 96.
- j. FM 100-5, Operations, June 93.
- k. FM 100-15, Corps Operations, Oct 96.
- l. FM 101-5-1, Operational Terms and Symbols, Oct 85.
- m. ST 63-1, Division and Corps Logistics, June 96.
- n. ST 100-3, CGSC Battle Book, June 96.
- o. ST 100-7, OPFOR Battle Book, Aug 96.
- p. ST 101-5, Command Staff Processes. Feb 96.
- q. ST 101-6, G1/G4 Battle Book, Jul 96.
- r. S310A/8 Advance Book, Dec 96.

ASSIGNMENTS

1. Each lesson advance sheet lists specific assignments. You will note that some of the lessons require more preparation than others. Your study habits and study plan are your responsibility.

2. Assignments assure you have the knowledge required to effectively complete the lessons and pass the subcourse examination. Most assignments are categorized as study, read, and review.

- a. Assignments requiring you to study expects mastery of the subject matter
- b. An assignment to read requires you to gain sufficient depth to make subjective decisions

c. Requirements to review are self-paced assignments that lend additional depth to your comprehension of the subject matter addressed in the current lesson. Review assignments usually cover information you have previously read or studied in this or another subcourse.

3. Some assignments may require you to practice a task or perform an analysis in writing. While this is not graded homework in the strictest sense, your completion of these exercises will assist in ensuring you can pass the subcourse examination.

4. During your tactics instruction, you will complete a variety of written assignments and practical exercises. These requirements will cause you to use and apply the knowledge and skills you gain from your study.

a. Practical exercises and assignments will require you to perform a multitude of activities ranging from the calculation of combat service support requirements to the execution of steps in the tactical decisionmaking and intelligence preparation of the battlefield processes. These exercises require the same kind of work you will do on the subcourse examination or in an actual war situation. You will individually complete the exam; therefore, it is best for you to complete all individual practical exercises.

b. In individual and practical exercises, you will most often be assigned a role as a specific staff officer or as a battle staff officer in a specific staff section. Read the special situation which describes your role, on-going staff and unit actions, and the general requirement. After reading the special situation, stop and reflect on the overall content, your role and inherent responsibilities, and what is required. Put on the appropriate staff officer's hat and then read the specific requirement looking at it through the staff officer's eyes. Complete your analysis of the staff officer's requirements and then begin work.

COMBAT OPERATIONS

Appendix 1 to Advance Sheet, S310A. Program for Joint Education Objectives

It is important for you to recognize both the distinctiveness and interdependence of joint and service schools in the education of officers in joint matters. Joint schools provide joint education from a joint perspective. Service schools provide joint education from a service perspective. The Command and General Staff Officer Course provides you with a service perspective education.

Instruction in S310A and S310B complements joint instruction presented thus far in the course. S310A and S310B focus at the brigade through corps levels and provide a service perspective of the tactical level of war. In addition, you will see the integration of the Sister Services in operations conducted at the tactical and operational levels of war.

S310A and S310B provide primary instruction for the following PJE learning objectives:

- 1a. Comprehend the capabilities and limitations of U.S. military forces.
- 1b. Explain the organizational framework within joint forces are employed
- 1e. Comprehend how the U.S. military is organized to plan, execute, sustain and train for joint and multinational operations.
- 2a. Comprehend current joint doctrine.
- 3e Summarize the relationships between strategic, operational, and tactical levels of war.
- 5b. Understand how command, control, communications computers. intelligence, surveillance, and reconnaissance (C⁴ISR) system apply at the operational level of war.
- 5c. Comprehend how Joint and Service systems are integrated at the operational level of war.

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COMBAT OPERATIONS

Lesson 1. United States Army Doctrine

Advance Sheet

SCOPE

During this lesson: you will be introduced to US Army warfighting doctrine and the central role of doctrine in your study of tactical combat operations. The appendixes to this advance sheet and parts of FM 100-5 will define and illustrate key concepts and examine the application (or lack thereof) of these concepts by using the VII Corps ground offensive in the Gulf War as a historical example.

ENABLING LEARNING OBJECTIVE

A.01 TASK: Explain the three levels of modern warfare

CONDITION: Individually, given assigned readings, a written requirement, with references.

STANDARD: The explanation must-

- Be IAW FM 100-5.
- Address the three levels of warfare as they apply to the VII Corps historical vignette.

LEVEL: Comprehension

PJE Phase I Objective Number: 3e.

A.02 TASK: Explain the components of combat power.

CONDITION: Individually, given assigned readings, a written requirement. with references.

STANDARD: The explanation must-

- Be IAW FM 100-5.
- Address the components of combat power as they apply to the VII Corps historical vignette.

LEVEL: Comprehension.

PJE Phase I Objective Numbers: NA

A.03 TASK: Explain the concept of mission orders, main and supporting efforts, and decisive points.

CONDITION: Individually, given assigned readings, a written requirement, with references.

STANDARD: The explanation must-

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- Be IAW FM 100-5 and Appendix 1 to Advance Sheet, Lesson I.
- Use VII Corps historical vignette to illustrate the interrelationship from the operational and tactical levels of war.

LEVEL: Comprehension.

PJE Phase I Objective Numbers: NA.

A.04 TASK: Relate the principles of war and the tenets of Army operation.

CONDITION: Individually, given assigned readings, a written requirement, with references.

STANDARD: The relationship must-

- Be IAW FM 100-5.
- Address the relationship as they apply to the VII Corps historical vignette.

LEVEL: Comprehension.

PJE Phase I Objective Numbers: NA.

A.05 TASK: Explain the purpose of Commander's intent.

CONDITION: Individually, given assigned readings, a written requirement, with references

STANDARD: The explanation must-

- Be IAW FM 100-5 and Appendix 1 to Advance Sheet, Lesson 1.
- Address the operational and tactical commander's intent as they apply to the VII Corps historical vignette.

LEVEL: Comprehension.

PIE Phase I Objective Numbers: NA.

A.06 TASK: Explain the purpose of concept of operation.

CONDITION: Individually, given assigned readings, a written requirement, with references.

STANDARD: The explanation must-

- Be IAW FM 100-5 and Appendix 1 to Advance Sheet, Lesson 1.
- Address nested concepts, main and supporting efforts, and decisive points as they apply to the VII Corps historical vignette.

LEVEL: Comprehension.

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PJE Phase I Objective Numbers: NA.

A.07 TASK: Explain the six tactical logistical functions and the five logistics characteristics.

CONDITION: Individually, given assigned readings, a written requirement, with references

STANDARD: The explanation must-

- Be IAW FM 100-5 and FM 71-100
- Address tactical and operational level offensive, defensive, and retrograde operations as they apply to the VII Corps historical vignette.

LEVEL: Comprehension

PJE Phase I Objective Numbers: Ia and Ie.

ISSUE MATERIAL

I. ADVANCE ISSUE

None

ASSIGNMENT

I. STUDY REQUIREMENT

First requirement. Be prepared to analyze the doctrine used by our Army forces in planning and conducting campaigns, major operations, battles, and engagements. Understand how doctrine has evolved in the United States Army, where Army doctrine comes from, why we have one, and why it is important for any army to have a doctrine. Increase your understanding of contemporary US Army warfighting and logistics doctrine by relating what you have read to operations in the Gulf war and the various logistics-related portions of the advance book.

a. Read.

- (1) Adv sheet and app 1 through 5 to adv sheet, lesson 1
- (2) FM 100-5, pp iv through vi, pp 1-1 through 1-2 (The Role of Doctrine), pp 2-4 (The Foundations of Army Operations) through 2-12 (Leadership), pp 2-14 through 2-15 (Battle Command), pp 6-1 (The Levels of War) through 6-9 (Culmination), chapter 7 (Fundamentals of the Offensive), pp 12-1 through 12-5 (Improvisation), and pp 12-11 through 12-13 (General Supply Support).
- (3) FM 71-100 pp E-1 through E-4 (Moving)
- (4) ST 100-3, pp 1-7 (Tactical Terms) through 1-8. (Definition of terms can be found on pages 1-11 through 1-34)
- (5) Lesson 1 Practical Exercise (Appendix 6)

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b. Study topics.

- (1) Define and analyze the term “doctrine.”
- (2) Define and analyze the term “Battle Command.”
- (3) Define mission orders, decisive points, main and supporting efforts, concept of operations, and commander’s intent.
- (4) What are nested concepts and how do they apply to mission orders
- (5) Define strategic, operational and tactical logistics.
- (6) Define the six tactical logistics functions.
- (7) Define the five logistics characteristics.
- (8) Use the historical vignette on the Gulf war to -
 - (a) Illustrate the following U.S. doctrinal concepts and how they applied to the VII Corp fight.
 - Levels of warfare.
 - Combat power.
 - Tenets.
 - Principles of War.
 - (b) Determine and illustrate VII Corps main and supporting efforts, decisive points, commander’s intent and concept of operations.
 - (c) Determine lessons learned from the historical vignette that have an impact on the evolution of current Army doctrine.
 - (d) Define the six tactical logistics functions.
 - (e) Define the five logistics characteristics.

COMBAT OPERATIONS

Lesson 1. United States Army Doctrine

Appendix 1 to Advance Sheet, Lesson 1. Key Doctrinal Concepts

1. Mission Orders

Mission orders. specify “what” the subordinate commands are to do without prescribing “how”. The mission is the commander’s expression of what the unit must accomplish and for what purpose. They do so by analyzing the mission statement and concept of the operation, understanding the commander’s intent starting two levels above, assessing the current situation, and organizing all resources available to achieve the desired end state. (FM 100-5, p 6-6)

Mission orders are explicit and direct. The initial order explains the situation, mission and intent of the commander clearly so that additional fragmentation orders (FRAGOs) can meet the changing situation. The commander’s intent statement is the commander’s personal expression of why an operation is being conducted and what he hopes to achieve. The intent links the commander’s vision and concept of operations. Mission orders enable the unit to seize and maintain initiative and set the terms of battle. They allow subordinate leaders to exercise independent judgment and exploit changing situations. (FM 71-100, p 3-21 and 3-22)

Orders will be short and mission oriented. Limitations to a subordinate commander’s freedom will be restricted to those required to ensure a coordinated accomplishment of the corps mission, (FM 100-15, p 4-19)

Initiative means depleting the enemy’s options, while still having options of our own. It requires leaders to ‘anticipate events on the battlefield so that they and their units can act and react faster than the enemy. Applied to individual soldiers, initiative requires a willingness and ability to act independently within the framework of the commander’s intent. (FM 100-5, p 2-6)

The restated mission is a clear concise statement of the task (or tasks) to be accomplished by the command and the purpose to be achieved. (FM 10 101-5, para 5-9)

Purpose takes precedence over task: If a battalion is ordered to drive the enemy from the hill, a bridge. etc., the true purpose is normally to occupy that point. The destruction of the enemy’s force is only a means to an end, a secondary matter. If more demonstration is enough to cause the enemy to abandon his position. the objective has been achieved

-Carl Von Clausewitz

A mission order provides subordinates the latitude to exercise initiative. Commanders and soldiers who understand why they are executing a mission are able to focus their unit on the decisive action, and make the maximum use of any flexibility with the higher commander’s concept. Conversely, those who do not fully understand their purpose impose artificial limitations on themselves, and are in danger of misinterpreting the mission so that the effects of their unit on the battlefield are wasted.

2. Commander's Intent and Decisive Point

Battlefield visualization includes the commander's view of what his force is to do and the resources he will need to do it. He envisions a sequence of actions that will cause his force to arrive at the desired end state. Ultimately, the commander's battlefield vision evolves into his intent and helps him develop his concept of operations. (FM 100-15, p 2-2)

Commander's intent describes the desired end state. It is a concise expression of the purpose of the operation and must be understood two echelons below the issuing commander. It focuses subordinates on the desired end state and what must be accomplished to achieve success, even when the plan and concept of operations no longer apply. and to discipline their efforts toward that end. (FM 100-5, p 6-6)

The commander's intent is a clear, concise statement of the what and why and how much risk is acceptable. It must convey to his subordinates his vision of how to accomplish the mission in a manner that allows those subordinates maximum initiative. When properly constructed, the intent statement provides the basis for the task organization, scheme of maneuver, tasks to subordinates, terrain organization, synchronization, and identification of critical collateral operations. (FM 100-15, p 4-2)

The commander's intent is a broad vision, stated succinctly, of how to conduct the operation. The intent expresses the purpose of the operation, the acceptable risk, and many include how the posture of the units at the end state of the operation will facilitate further operations. (Battle Command Techniques and Procedures. p 2-28)

The decisive point is a point whose attack or capture would imperil or seriously weaken the enemy
-Jomini

I have made to reach this point the superiority of numbers in a given engagement is only one of the factors that determines victory... thus it follows that as many troops as possible should be brought into the engagement at the decisive point...the skillful concentration of strength at the decisive point. is much more frequently based on the correct appraisal of this decisive point.

Carl Von Clausewitz

It is an error to concentrate one's strength without an entirely define purpose and anywhere other than a decisive point.

-Helmuth Graf von Moltke

Decisive points provide commanders with a marked advantage over the enemy and greatly influence the outcome of an action. Commanders designate the most important decisive points and allocate resources to achieve them. Decisive points help commanders gain or maintain the initiative. (FM 100-5, p 6-7 and 6-X)

The decisive point provides a focus for planning, preparation, and execution. Decisive points are enemy, terrain, or event oriented actions that if accomplished. would lead directly to achievement of the mission's purpose. (FM 7-30, p 1-5)

Decisive point (s) conveys to subordinates a potential point of decision that the commander has identified through his estimate process. Ideally a decisive point will be where an enemy weakness is positioned that allows maximum combat power to be applied which should lead to mission

accomplishment. This point can be defined as a point in space, time, or event at which we seek a decision. (ST 100-3, p 1-18)

In every engagement there is a point where one side starts winning and the other side starts losing.
—Unknown

The commander's purpose is contained in his mission statement, and what is required from an intent statement is what the commander determines to be decisive. What is decisive should be stated in terms of the terrain, the enemy and or time. The commander can also clarify where he is willing to use economy of force (risk) or mass the effects of his combat power.

3. Nested Concepts

The means to achieve unity of purpose is a nested concept whereby each succeeding echelons's concept is nested in the other, (FM 100-5, p 2-5)

Each subordinate commander, in turn, develops his intent and concept of operations in consonance with the higher commander's concept. This nesting of intents and concepts provides unity of effort throughout the force to every maneuver and functional unit, with the focus being successful mission accomplishment across the range of military operations. (FM 100-15, p 4-2 and 4-3)

When the top commander develops and disseminates his concept orally, by overlay and flag orders or by written OPORD, he obliges his subordinates to conform to and execute. Each successive subordinate is expected to articulate and elaborate that concept in accordance with the particular conditions of enemy, terrain and resources at his level; thus the higher concepts are progressively tuned to local reality. This is the genius of the system - a centralization of concept, a decentralization of execution and a full exploitation of forces and opportunities. Cascading concepts carry the top commanders intentions to the lowest levels, and the nesting of those concepts traces the critical path of concentration and priorities. Although the corps commander could not direct the various platoons towards their objectives, he is content to know that their actions will derive from his concept as it cascades down through his command and as each commander, in turn, embraces and articulates that concept in one of his own, which is adapted to the unique circumstances in his zone or sector. The concepts are nested like mixing bowls in a kitchen. Each must fit within the confines of the larger and accommodate the nest smaller and so on down to squad (General DePuy, Army, Aug 1988, pp 26-40)

Each subordinate commander's intent must be framed and embedded within the context of the intent of the commander two echelons up. Intents must be nested, both vertically and horizontally, to achieve a common end state throughout the command. (Battle Command Techniques and Procedures, p 2-28)

FM 100-5, FM 100-15, and GEN DePuy reference the vertical component of nested concepts which articulates the vertical linkage of main efforts from corps through battalion. However, there is a requirement for units to understand how they are nested horizontally. The horizontal linkage between main and supporting efforts will ensure that the action of your unit will take place in concert with those to your left and right. Additionally, allowing your subordinates to understand "why" they are fighting (their unique contribution) and how their "why" directly or indirectly supports the units around them increases understanding and reduces uncertainty.

4. Main and Supporting Efforts

Commanders at all levels should designate a point of main effort along with supporting efforts. This helps them and their staffs allocate resources accordingly, providing focus to the operation while setting priorities and determining risks, promoting unity of effort and facilitating understanding of the commander's intent. (FM 100-5. p 6-6)

Only one unit conducts the main effort. Normally, the commander visualizes the ultimate defeat of the enemy force by his main effort. Designating a main effort provides the focus that each subordinate and supporting commander (supporting efforts) uses to link his actions to the actions of those around him. The main effort is the part of a commander's concept that permits initiative by maintaining direction and cohesion (FM 100-15. p 2-7)

The main effort is assigned to only one unit at a time. It accomplishes an action critical to the overall mission. The commander applies combat power as necessary to support his main effort. Subordinate and supporting commanders (supporting efforts) focus on the main effort to link their actions with those around them (FM 71-100, p 2-15)

Main and supporting efforts must be resourced to accomplish their assigned missions. The primary method of weighting the main effort is through the missions assigned to the supporting efforts including, deep, reconnaissance and security, war, and close. A commander can therefore ensure the success of the main effort without necessarily giving it the majority of combat support assets. The overburdening of the main effort with assets makes it more difficult for it to act quickly and purposefully at the decisive point and time. It is the understanding of the relationships between and the purposes to be achieved by the main and supporting efforts that should drive the prioritization and allocation of resources.

5. Summary

A proper understanding of the purpose of missions is fundamental to initiative-oriented orders. Only by understanding the purpose of an mission can a commander ensure that his unit brings the maximum effect to the battlefield. Understanding one's purpose initially comes from an analysis of horizontal and vertical nesting - the relationship between the unit and the superior unit and between main and supporting efforts for a given operation. From this the unit's unique contribution to the operation can be deduced. This is that unit's purpose.

Once a commander is clear about the purpose of his unit in battle he can assign a task that best ensures the achievement of that purpose. In the friction and fog of battle, however, the purpose is the single most stable component of a mission statement. The task is based on the commander's perception of the battlefield at a particular time and may have to change as planning converts to reality. The assigned tactical task should be doctrinally defined and should have a measurable effect in terms of enemy, terrain, or friendly forces. Shortcuts in the analysis of purpose in mission analysis are self-defeating.

Problems that occur later during the decisionmaking process, or in execution, lie in an inadequate understanding of the unique contribution that a unit brings to the battlefield. An understanding of purpose is fundamental to success in battle because you are identifying your unit's purpose (or why) and how, that purpose relates to the forces around you (nesting). This understanding, along with situation analysis of mission, enemy, troops, terrain/weather and time available (MEIT-T) tells you at any point in preparation or execution if our mission is still attainable.

Understanding the above becomes the main spring of initiative during execution. You allow yourself to keep superior commanders concept of operation and intent viable by asking this question: Is the current situation radically different from the enemy/friendly situation portrayed in my superior commanders operations order (OPORD) and, if so, what is the impact of these changes on the mission?

COMBAT OPERATIONS**Lesson 1. United States Army Doctrine**

Appendix 2 to Advance Sheet, Lesson I. Desert Storm: Transition to the Offensive

TRANSITION TO THE OFFENSIVE**INTRODUCTION**

President Bush, speaking to the nation on 8 November, announced the United States would send more forces to the Gulf to give the Coalition 3 combined arms offensive capability. The President's statement marked a new phase in the crisis. Until that announcement, the United States and its allies had concentrated on deploying enough forces and materiel to deter Iraqi attack and defend Saudi Arabia from invasion. By early October, that goal had been achieved. Concurrently, the United States and several Coalition partners began discussing a wide range of military options in the event economic sanctions proved insufficient to convince Saddam Hussein to withdraw his army from Kuwait. While increasing the pressure on Saddam Hussein through further action at the United Nations and the application of sanctions. President Bush told his national security advisors in October he wanted them to develop a strong military option to force Iraq from Kuwait should that prove necessary. For the next three-and-a-half months, the Defense Department planned and prepared for offensive operations.

PLANNING FOR THE OFFENSIVEEvolution of the Offensive Plan

Immediately after the Iraqi invasion of Kuwait, the Commander in Chief, Central Command (CINCCENT) developed several Deterrent Force Packages for consideration by the Chairman, Joint Chiefs of Staff (CJCS), Secretary of Defense, and the President. On 4 August, at a meeting in Camp David, MD, CINCCENT presented his initial ideas to the President. These Deterrent Force Packages included an array of forces which included carrier battle groups (CVBGs), tactical fighter squadrons, tanker aircraft, Airborne Warning and Control System (AWACS), B-52s, Maritime Prepositioning Force Marine Expeditionary Brigades (MPF MEB), and an airborne division.

"The first thing for a commander in chief to determine is what he is going to do, to see if he has the means to overcome the obstacles which the enemy can oppose to him and, when he has decided to do all he can to surmount them."

*Napoleon
Maxim LXXIX*

The Secretary of Defense instructed CJCS and CINCCENT to develop an offensive option that would be available to the President in case Saddam Hussein chose to engage in further aggression or other unacceptable behavior, such as killing Kuwaiti citizens or foreign nationals in Kuwait or Iraq. On 10 August, the Air Force (USAF) deputy director of plans for warfighting concepts briefed CINCCENT in Florida. The CJCS was briefed the following day, and directed the Air Staff to expand the planning

From *Title V Report to Congress: Conduct of the Persian Gulf War, 1993*, pp 64-75.

group to include Navy, Army, and Marine Corps members and to proceed with detailed planning under the authority of the Joint Staffs (JS) director of operations (J3). He reviewed the concept with the Secretary of Defense and received his approval. As the plan was developed further, it continued to be reviewed in detail by the Secrtav of Defense and CJCS, culminating in an intensive two-day review of the plan in Saudi Arabia in December. If all went well, air attacks would paralyze Iraqi leadership, degrade their military capabilities. and neutralize their will to fight.(* * *)

After the Camp David meetings. planning continued at Central Commmd (CENTCOM) headquarters. On 25 August. CINCCENT briefed the Secretary of Defense and the CJCS on a four-phase offensive campaign, designed to provide a coordinated multi-axis air, naval and ground attack beginning with Phase I, "Strategic Air Campaign" against Iraq; Phase II, "Kuwait Air Campaign" against Iraqi air forces in Kuwait; Phase III, "Ground Combat Power Attrition" to neutralize the Republican Guard and isolate the Kuwait battlefield; and Phase IV, "Ground Attack" to eject Iraqi forces from Kuwait. At this point, the plan for the ground campaign was in outline form. although no request was made for forces at this time. CINCCENT concluded that assembling the necessary forces in theater for a ground offensive would take at least eight months. (the precise phase titles later were changed as the war evolved.)

DURING THE 25 AUGUST BRIEFING A CHART PORTRAYED CINCENTS INTENT:

We will offset the imbalance of ground combat power by using our strength against his weakness. Initially execute deception operations to focus his attention on defense and causes incorrect organization of forces. We will initially attack into the Iraqi homeland using air power to decapitate his leadership, command and control, and eliminate his ability to reinforce Iraqi forces in Kuwait and southern Iraq. We will then gain undisputed air superiority over Kuwait so that we can subsequently and selectively attack Iraqi ground forces with air power in order to reduce his combat power and destroy reinforcing units. Finally, we will fix Iraqi forces in place by feints and limited object attack followed by armored force penetration and exploitation to seize key lines of communication nodes, which will put us in a position to interdict resupply and remaining reinforcements from Iraq and eliminate forces in Kuwait.

The development and refinement of the plans continued to be reviewed in detail by the Secretary of Defense and CJCS, culminating in an intensive two-day review of the plan in Saudi Arabia in December.

The initial concept of operations for the ground campaign included use of only a single corps and called for a night ground attack with the objective being an area of high ground north of the Mutla Pass and Ridge, near Al-Jahra and Kuwait City. on the main line of communication (LOC) northwest of Kuwait City. The plan involved an attack north by a single corps, fighting only selected enemy forces, conducting high tempo operations, and overwhelming enemy defenses with mass rather than finesse.

On 11 October, this plan, with the single corps ground campaign, was briefed to the President, Secretary of Defense, and the CJCS, by the CENTCOM Chief of Staff * * *. Many risks were outlined, including the possibility of significant casualties; the difficulty of sustaining forces across an extended LOC; the lack of an armor force to serve as theater reserve; and the threat that Iraqi chemical attacks would slow the pace of operations. Further, success depended on several key accomplishments: the air campaign had to produce projected attrition of combat effectiveness to ensure success on the ground; the Coalition had to overcome interoperability obstacles; and the campaign had to end quickly with capitulation of Iraqi forces to avoid a protracted war of attrition. Planning for Phases I-III was sound.

However, there strong reservations concerning Phase IV. The draft plan called for advancing through the southern Kuwait border- - 60 kilometers east of the Tri-border area. A frontal attack was to be directed at the enemy's obstacle belts and defensive fortification and forces

The CENTCOM briefing produced two reactions. One was a concern because the plan called for an attack into the strength of the Iraqi positions. A second concern was that no matter what plan of attack was decided on, there was a need for more force than were in the Kuwait Theater of Operations (KTO) at the time.

The day after the meeting with the President, the Secretary of Defense directed preparation of options for an attack on Iraqi forces through the Western Iraqi desert in lieu of the riskier frontal attack. After consultation with the President the Secretary of Defense directed CJCS to go to Saudi Arabia in order to find out from CINCENT what he needed and to tell him that the President would be disposed to give him whatever forces he needed to do the job.

At a meeting of planners on 15 October. CINCENT directed that the concept of the ground attack include a wider envelopment to the west. Although planning for a single corps attack would continue. CINCENT directed consideration of a two-corps option as well. The concept of operations for the two-corps option (see Enclosure A to App 2 to Adv Sheet, lesson I) assumed that attrition of crucial ground, air defense and comm, and, control and communication (C³) systems would be achieved by strategic and tactical air before Phase IV began, and that Iraqi forces would use chemical weapons during the ground attack. The intent was for the air campaign to establish favorable strategic conditions. and to set the stage for the ground offensive. On 21 October, CINCENT was briefed on the revised offensive plan. He directed that the main effort would be to destroy the RGFC.

On 22 October, the CJCS was briefed in the CENTCOM headquarters on the ground offensive. The CJCS was briefed on both a single and a two-corps attack. The advantages and disadvantages of both options were assessed. Discussion ensued concerning the advisability of using a single corps attack. CINCENT stated that a single corps frontal attack put the force at risk because Coalition strength was insufficient to attack a force the size of Iraq's. In terms of advantages, the concept for a two-corps attack would permit: massing of Coalition forces; high tempo of operations; fighting only selected Iraqi forces; bypassing of the obstacle belt; and surprise. The disadvantages were the risk to supply lines 180 km long and the risk to the flanks of the main attack which were exposed for about 100 km. The plan sacrificed simplicity and flexibility because of the relative complexity of multiple supporting attacks and the precise timing of the attacks. Discussion ensued concerning the advisability of employing a single corps attack. As a result of the meeting, the CJCS reiterated that CINCENT should continue planning for a two-corps attack and, agreed to seek approval from the Secretary of Defense and the President for additional forces consisting of the VII Corps, the 1st Infantry Division, a Marine division, additional CVBGs, an additional amphibious MEB and tactical fighter wing.

* * * * *

Direction was issued to expand the area of offensive operations farther to the west to a road the Iraqis had built from As Salman to the Saudi border. Guidance was given to investigate an area of operations from the vicinity of As-Samawah to the east along Highway X to select suitable terrain for a battle to destroy the RGFC in the KTO. Planning assumptions now were based on the availability of: two Army corps, one USMC corps, one corps consisting of two Egyptian divisions and one Syrian division, and Arab forces consisting of Saudi and Gulf Cooperation Council (GCC) forces.

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Throughout, trafficability issues played a roll in planning. There was concern as to whether wheeled vehicles could negotiate the terrain north of the Saudi-Iraqi border. A secondary concern was cross-country mobility for large trucks west of the Kuwait-Iraq border. A trafficability test was conducted by XVIII Airborne Corps in the area east of Wndi A1-Batin and south of the Kuwait-Saudi border. The terrain in this location most closely resembled that west of the Wadi A1-Batin and north of the intended line of departure. Tracked and wheeled vehicles were driven cross-country to confirm the terrain could accommodate them.

CENTCOM planners met 1 November to discuss logistics requirements to support Operation Desert Storm. Sustainment in the desert for a second increment of deployments and for existing forces was a major concern. Initial force developments in August had demonstrated it would be too difficult to receive, move, and sustain more forces in such an austere environment without first deploying additional combat service support (CSS) capabilities. * * * The planners decided to deploy more CSS before combat and combat support (CS) forces. The CSS forces were needed to provide support and transport forces. Contrary to the practice of marshaling units and their equipment at the ports of debarkation, the plan was to receive and push forces directly to assembly area because the capacity, of air and sea ports of debarkation would not support linkup and marshaling operations on the scale and in the time available for the second increment of forces.

On 14 November, CINCCENT conducted a commanders' conference at Dhahran to discuss offensive operations. CINCCENT explained his concept. XVIII Airborne Corps was to be used in the west in the vicinity of As Salman to As Samawah. The European-based VII Corps would be the main effort and destroy the RGFC. British forces would remain with Marine Corps Component, Central Command (MARCENT) (a decision later reversed). A heavy division was to be assigned as the theater reserve. Supporting attacks would be conducted by the First Marine Expeditionary Force (I MEF), Joint Forces Command North (consisting of Egyptian, Saudi, and Syrian forces) and Joint Forces Command East (consisting of Saudi and GCC forces). Commanders were directed to have forces ready by mid-January.

Initially, the United States planned unilaterally for the offensive while simultaneously participating with the Coalition in the defense of Saudi Arabia. Coalition partners became fully involved in planning the overall offensive once the United Nations (UN) and Coalition members agreed to UN Security Council (UNSC) Resolution 678. On 10 December, CINCCENT directed that combined planning begin on the offensive campaign. Each Coalition force had unique strengths and weaknesses which planners had to take into account to achieve the best overall results. Saudi Arabia and Egypt, as the designated planners for Arab-Islamic forces, were then involved in the detailed planning. On 15 December, a combined warning order was issued to Coalition forces so they could begin their preparation for offensive operations.

On December 19 and 20, the plans were reviewed in detail by the Secretary of Defense and CJCS during the course of two full days of briefings at CINCCENT Headquarters in Riyadh. At the conclusion of that review, the Secretary of Defense gave his approval of the plan. On their return to Washington, he and the Chairman briefed the President, who also approved the plan. At that time, it was decided that if Saddam Hussein refused to withdraw from Kuwait and it became necessary to use force, the offensive would begin with the air campaign. While the ground campaign was approved, its start would be a separate and subsequent decision also requiring Presidential approval. * * *

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The operational imperatives outlined were:

- Achieve air superiority to allow Coalition freedom of movement and maneuver.
- Reduce to about half the combat effectiveness of Iraqi armor and mechanized forces with Coalition air assets. Of these, reduce selected brigades so the surviving unit was no larger than a battalion
- Fight only selected Iraqi ground forces in close battle.
- Mass Coalition forces against selected Iraqi forces.
- Accept losses no greater than the equivalent of three companies per Coalition brigade.
- Achieve rapid theater tactical intelligence feedback on battlefield events.
- Use strategic deception to portray a defensive posture.
- Use operational deception to fix or divert Republican Guard and other heavy units away from main effort.
- Use tactical deception to facilitate penetration of barriers.
- Friendly LOCs must support minimum supply requirements.

THE IRAQI THREAT IN OVERVIEW

A central element of military campaign planning is the estimation of enemy forces, including their strengths and weakness.

Intelligence Estimates

By mid-October, intelligence estimates indicated Saddam Hussein had more than 435,000 troops on the ground in Kuwait, dug in and arrayed in mutually supporting defenses in depth. These forces continued to grow, and were believed to have reached more than 500,000 by January. At least two defensive belts interspersed with formidable triangular fortifications had been established along the Saudi border with Kuwait. These defensive belts consisted of minefields and oil-tilled fire trenches, covered by interlocking fields of fire from tanks, artillery, and machine gun positions. Strong, mobile, heavily armored counterattack forces, composed of the best elements of the Iraqi army, stood poised to strike at Coalition penetrations of the initial lines of defense. The Republican Guard units, augmented by army heavy division, served as the theater reserve and counterattack force. Equally strong positions were constructed along the sea coast, incorporating naval and land mines. Iraqi troops also fortified high rise apartment buildings fronting on the Gulf, turning them into multi-tiered fortresses.

Iraqi forces constructed an impressive system of roads, buried communications lines and supply depots. Command posts also were buried, often under 25 feet of desert soil. This infrastructure did much to multiply the combat power of an already powerful defensive force. It allowed reinforcements and supplies to move over multiple routes to any point on the battlefield. These roads, many of which were multi-line, were so numerous that it was not feasible to destroy all of them. Buried telephone lines and fiber optic cables for command and control (C2) purposes also were very difficult to attack. In early January, stocks of supplies in Kuwait and just north of the Iraq-Kuwait border were estimated to be sufficient to last through a month or more of sustained combat without replenishment, and many of these stocks had been dispersed to make detection and destruction more difficult.

Enemy Vulnerabilities

Despite Iraq's numerical strength and extensive military infrastructure, the Coalition knew the Iraqi forces had significant weaknesses:

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- A rigid, top-down C² system and the reluctance of Iraqi commanders to exercise initiative;
- Ground forces and logistics especially vulnerable to air attack in desert conditions;
- A generally defensive approach to battle and limited ability to conduct deep offensive operations;
- An over-extended and cumbersome logistics system;
- An uneven quality of military forces, built around a limited number of Republican Guards divisions;
- Faulty understanding of Coalition forces operational capabilities;
- A limited ability to interfere with US space-based assets;
- A limited air offensive capability; and,
- Ineffective foreign intelligence.

Iraqi Centers of Gravity

In addition to these weaknesses, the Coalition had identified Iraq's centers of gravity. First the command, control, and leadership of the Saddam Hussein regime. If rendered unable to direct its military forces, or to maintain a firm grip on its internal population control mechanisms, Iraq might be compelled to comply with Coalition demands. Second, degrading Iraq's weapons of mass destruction capability would reduce a major part of the threat to other regional states. This meant attacking the known Iraqi nuclear, chemical and biological (NBC) warfare production facilities along with various means of delivery-principally ballistic missiles and long-range aircraft. The third of Iraq's centers of gravity was the Republican Guard. Eliminating the Guard in the KTO as a combat force would reduced dramatically Iraq's ability to conduct a coordinated defense of Kuwait or to pose an offensive threat to the region later.

PRINCIPLES OF PLANNING

Decisive Force

In order to achieve assigned goals quickly and with minimum Coalition casualties, US defense planners applied the principle of decisive force. This contrasted with the incremental, attrition warfare which had characterized US operations in Vietnam. When US forces were committed to combat in Southwest Asia, planners were able to exploit every possible advantage in tactics, equipment, command and control, and the forces deployed to the theater at maximum speed. The Coalition used these advantages to conduct massive simultaneous operations throughout the KTO and Iraq rather than attacking centers of gravity and other crucial objectives piecemeal.

Strength Against Weakness

The overall offensive strategy was designed according to tested principles of applying strength against the enemy's weakness, while preventing him from doing the same to Coalition forces. Although the Coalition was operating in an environment seemingly more familiar to the opponent, uncertainty about Saddam Hussein's intent to use weapons of mass destruction, operating across an enormous area and with extended LOCs, and was, according to intelligence estimates, outnumbered, the Coalition nevertheless could exploit a number of distinct strengths. Among these were the high quality of Coalition air, ground, and naval forces, specifically:

- Superior personnel and training;
- Technological advantages in weaponry;
- The prospect of early and effective air superiority;
- A superior ability, to acquire intelligence in the theater, including unimpeded access to space;
- Widespread international support, and;
- The high caliber of Coalition political and military leadership.

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FINALIZING THE PLAN

National Policy Objectives and Military Objectives

* * * The military objectives for the offensive operation were derived from the national policy objectives * * *. Operation Desert Storm departed from the “deter and defend” objective of Operation Desert Shield and focused on forcing Iraq to withdraw from Kuwait.

CINCCENT Mission Statement

CONDUCT OFFENSIVE OPERATIONS TO:

- Neutralize Iraqi National Command Authority
- Eject Iraqi Armed Forces from Kuwait
- Destroy the Republican Guard
- As Early As Possible, Destroy Iraq’s Ballistic Missile, NBC Capability
- Assist in the Restoration of the Legitimate Government of Kuwait

In accordance with that mission statement. CINCCENT promulgated the key theater military objectives as stated in CENTCOM Operations Order 91-001, dated 17 January as follows:

- Attack Iraqi political-military leadership and C²,
- Gain and maintain air superiority;
- Sever Iraqi supply lines;
- Destroy known nuclear, biological and chemical (NBC) production, storage. and delivery capabilities;
- Destroy Republican Guard forces in the KTO: and,
- Liberate Kuwait City.

THE PLAN IS ADOPTED

As a result of the extensive planning process described above with its attendant, frequent consultation among the political and military leaders of the Coalition, the final, four-phased concept of operations was developed and adopted.

As noted, the Coalition plan was crafted to emphasize Coalition strengths and to exploit Iraqi weaknesses. Years of experience in joint service, air-ground operations and similarly extensive experience in coalition operations in the North Atlantic Treaty Organization enabled CENTCOM to create the right mix of forces for the circumstances confronting the Coalition. Especially within US forces. the experience gained from many joint and combined exercises, the presence of first-rate equipment and weapons, and the advantage of well-trained, motivated personnel led by confident, competent leaders resulted in military forces that could not only execute their battle plans, but also could improvise and overcome the unexpected. * * * Further, well-coordinated air. ground and naval operations were expected to produce a synergy that would overwhelm Saddam Hussein with minimum Coalition losses.

CINCCENT

Concept of Operations:

- *Conduct a Coordinated, Multi-National Multi-Axis Air, Naval and Ground Attack*

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- Strategic Air Campaign Focused on Enemy Centers of Gravity
 - Iraqi National Command Authority
 - NBC Capability
 - Republican Guard Force Command
- Progressively Shift Air Operation to; and Conduct Ground Operation in the KTO to
 - Isolate KTO-Server Iraqi Supply Lines
 - Destroy Republican Guard Force
 - Liberate Kuwait City with Arab Forces

Just as the theater campaign plan contemplated Coalition strengths, it anticipated Saddam Hussein's weaknesses. The Coalition heavily targeted his rigid C^2 system, his strategy, doctrine, logistics infrastructure and air defense system vulnerabilities. Similarly, expecting the Iraqi army would be unable to see the battlefield in depth, the Coalition planned the long, sweeping ground force maneuvers through the desert 'against a blinded enemy.

Coalition political leaders and commanders planned to use air power and ground combat power to eject Iraq's forces from Kuwait. The Coalition also sought to destroy Iraqi ability to threaten regional peace and stability further. The Coalition could accomplish this by attacking carefully selected targets, but leave most of the basic economic infrastructure of the country intact. Collectively these actions would weaken Saddam Hussein's regime and set the stage for a stable regional military balance.

Air Campaign Plan in Overview

The air campaign was developed to provide the President an offensive option in the early fall. It was a "strategic" plan designed to attack Saddam Hussein's vital centers of gravity. The concept was designed to paralyze the Iraqi leadership's ability to command and control (C^2) its forces, to destroy known Iraqi weapons of mass destruction, to render Iraqi forces in the KTO combat ineffective, to prepare the battlefield for ground force operations, and to minimize the loss of life for Coalition forces. The air campaign was designed to be executed in three phases and its success depended on overwhelming the Iraqi command structure and air defense. gaining accurate intelligence, exploiting technological advantages, and, ultimately, on the ability of the combat crews. Once the air attacks had brought the ratios of combat power to an acceptable level, and if the Iraqis had not yet complied with UN demands, multinational air and ground forces would conduct a coordinated combined arms attack to eject Iraqi forces occupying Kuwait and to destroy those forces remaining in the KTO. By January, there were enough air forces available that Coalition leaders decided to execute the three phases of the air campaign almost simultaneously, thus applying overwhelming pressure from the opening minutes of the war (* * *).

The air campaign was intended to achieve the specific objectives listed below

- Gain and maintain air supremacy to permit unhindered air and ground operations.
- Isolate and incapacitate the Iraqi regime.
- Destroy Iraq's known NBC Warfare capability.
- Eliminate Iraq's offensive military capability by destroying key military production, infrastructure, and power capabilities.
- Render the Iraqi army and its mechanized equipment in Kuwait ineffective. causing its collapse.

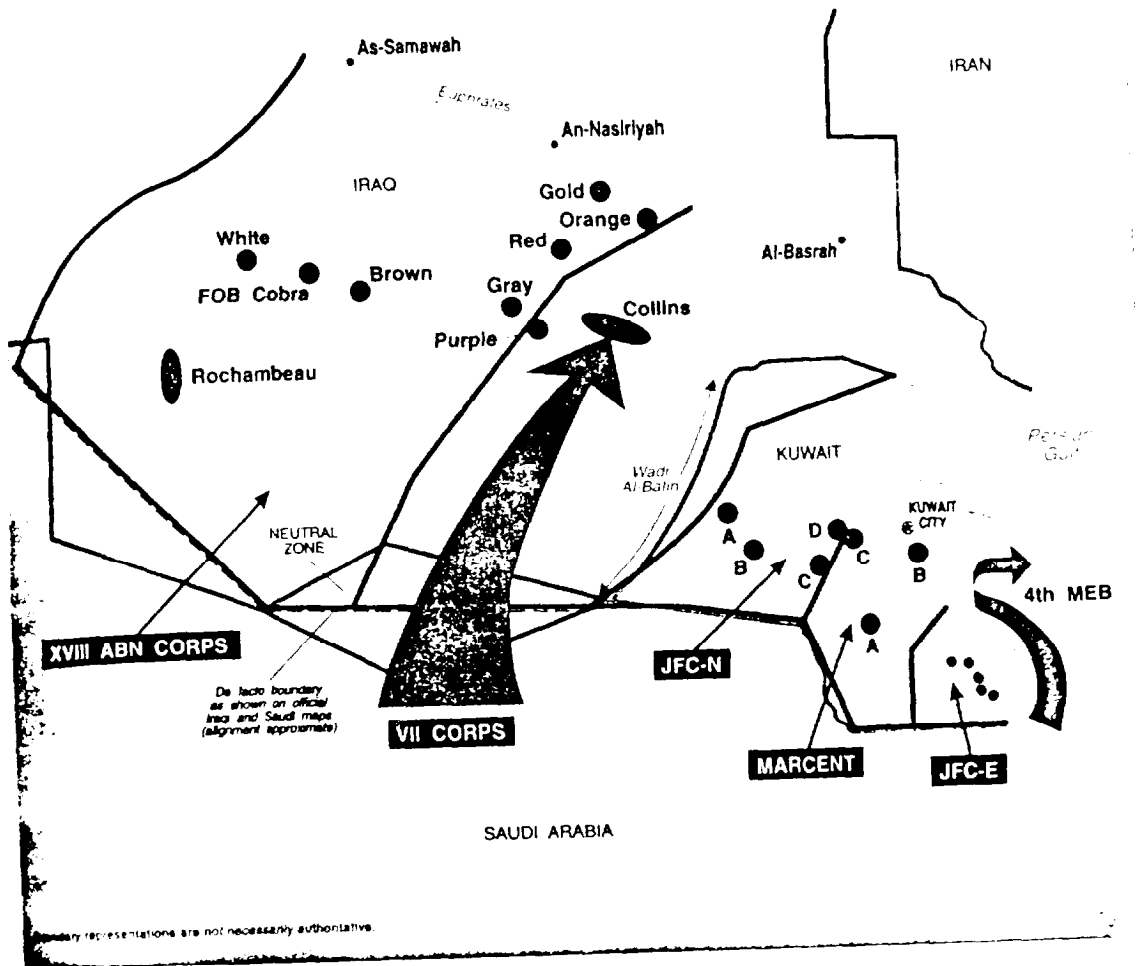
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COMBAT OPERATIONS

Lesson 1. United States Army Doctrine

Enclosure A to Appendix 2 to Advance Sheet, Lesson 1: The Ground Tactical Plan.



From *Title V Report to Congress: Conduct of the Persian Gulf War, 1993*, p 71.

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COMBAT OPERATIONS

Lesson I. United States Army Doctrine

Appendix 3 to Advance Sheet, Lesson I. Desert Storm: The Ground Campaign

THE GROUND CAMPAIGN**INTRODUCTION**

Operation Desert Storm's final phase began on 24 February, after more than 180 days of maritime interception operations and 38 days of aerial bombardment. The ground offensive's objective were to eject Iraqi Armed Forces from Kuwait, destroy the Republican Guard in the KTO, and help restore the legitimate government of Kuwait. The plan envisioned a supporting attack along the Kuwait-Saudi Arabia border by the I Marine Expeditionary Force (1 MEF) and Arab Coalition forces (JFC-E and JFC-N) to hold most forward Iraqi divisions in place. Simultaneously, two Army corps. augmented with French and United Kingdom (UK) divisions-more than 200,000 soldiers-would sweep west of the Iraqi defenses, strike deep into Iraq. cut Iraqi lines of communication (LOC) and destroy the Republican Guards in the KTO.

* * * * *

CINCCENT has said that several factors influenced his belief as to when the Offensive Ground Campaign should begin. These factors included force deployments and planning, logistics buildup, weather forecasts favorable for ground offensive operations, cohesion of the Coalition, and attack preparations along with the air campaign. All were important in reducing risks and enhancing the probability of success with limited losses. While precise measurement of force ratios was not possible, senior commanders considered that Iraqi combat effectiveness needed to be reduced by about half before the ground offensive began. Combat effectiveness included both measures such as numbers of soldiers, tanks, armored personnel carriers, and artillery (and degradation thereof), as well as less measurable factors such as morale. Once air operations began, Iraqi reactions could be analyzed to provide further evidence on their military capability. * * *

* * * * *

You nay fly over a land forever; you nay bomb it and wipe it clean of life-but if desire defend, protect it, and keep it for civilization, you must do this the ground, the way the Roman legions did, by putting you your young men into the mud.

T. R. Fehrenbach
This Kind of War

Operational Imperatives

Planners had reached several significant conclusions that were designated as operational

From *Title V Report to Congress: Conduct of the Persian Gulf War*, 1993, pp 226-259.

imperatives and would remain as central planning tenets throughout planning for the offensive. The planners concluded that for the ground campaign to be successful, the air campaign would have to reduce Iraqi combat effectiveness in the Kuwait Theater of Operations by about half. A second operational imperative was that Coalition ground forces should fight only those enemy units necessary to achieve Coalition objectives while bypassing other enemy forces. The third operational imperative was that battlefield tactical intelligence would be required in the hands of battlefield commanders so rapidly that fire power could be placed on target before the target could move sufficiently to require retargeting. It was felt that this tactical intelligence-targeting feedback loop would be critical to success on the battlefield.

* * * * *

CINCCENT's Strategy and Concept

On 14 November, CINCCENT briefed his concept for the operation to all his ground commanders down to division level. XVIII Airborne Corps was to be used in the west. VII Corp would be the main effort and would destroy the RGFC in the KTO. British forces would remain with MARCENT (a decision later reversed). A heavy division was to be assigned as theater reserve. Supporting attacks would be conducted by the I MEF, Joint Forces Command-North (consisting of Egyptian, Saudi, and Syrian forces) and Joint Forces Command-East (consisting of Saudi and CCC forces). Commanders were directed to have forces ready by mid-January.

Commander's Intent: Maximize Friendly strength against Iraqi Weakness and Terminate Offensive Operations with the RGFC Destroyed and Major US Forces Controlling Critical LOC's in the Kuwaiti Theater of Operations.

AirLand Battle Doctrine

The basis for ARCENT operations was AirLand Battle doctrine. The essence of AirLand Battle is to defeat the enemy by conducting simultaneous offensive operations over the full breadth and depth of the battlefield. It is the intellectual road map for operations, conducted at corps and above, and tactics, conducted below corps. This doctrine places tremendous demands on combat leaders. Commanders must fight concurrently what are known as close, deep, and rear operations, all as interrelated parts of one battle. Commanders fight close-to destroy enemy forces where the battle is joined. They fight deep-to delay or attack enemy reserves. These operations are intended to disrupt the enemy's plan and create opportunities for success in close operations. They fight rear, behind forward units, to protect CSS assets and to retain freedom of action for friendly sustainment and movement of reserve forces.

AirLand Battle doctrine is centered on the combined arms team, fully integrating the capabilities of all land, sea and air combat systems, and envisions rapidly shifting and concentrating decisive combat power, both fire and maneuver, at the proper time and place on the battlefield. Ultimately, success on the AirLand battlefield is predicated on five basic tenets:

- D • Depth-the extension of operations in space, time, and resources;
- A • Agility-the ability, of friendly, forces to act mentally and physically faster than the enemy;
- V • Versatility-the ability, of units to meet diverse challenges, shift focus, tailor forces, and move from one role or mission to another rapidly, and efficiently;
- I • Initiative-to set or change the terms of battle by offensive action;
- S • Synchronization-the arrangement of battlefield activities in time, space, and purpose to produce maximum relative combat power at the decisive point.

* * * * *

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Logistics

From the first day of Operation Desert Shield, the logistical effort was major priority. Committed to a theater of operations without a broad, well-developed logistics infrastructure or transportation network, and lacking established alliance support relationships, US forces had to create these capabilities in the midst of a massive deployment, with the prospect of imminent combat.

Saudi air and sea ports are modern, sophisticated and complex, rivaling those of Europe and the Pacific in terms of capacity and capability, Major coastal roads and road systems around principal Saudi cities were also excellent. These provided a foundation which was critical to the overall effort. In contrast, the meager inland transportation system dictated a major road building effort and field logistics infrastructure development.

The ability to support and sustain the force was perhaps the most crucial operational consideration as CINCCENT planned the theater offensive. Massive logistics assets would have to be in place to support the ground offensive. Accordingly, two contingency plans were developed. The first was to shorten the LOC by building roads following the attacking corps. The second was a logistics over the shore operation, if a port in Kuwait could be made available. A base along the Kuwaiti coast, at Ash Shuaybah or farther north, would shorten logistics lines b). hundreds of miles and enable supplies to be carried by sea from main bases in Al-Jubayl and Ad-Dammam.

Plan for Sustainment

The forces to be supported for the ground offensive were sizable. ARCENT, British, and French forces totaled 258,701 soldiers, 11,277 tracked vehicles, 47,449 wheeled vehicles, and 1,619 aircraft. In accordance with joint doctrine and agreements, ARCENT also retained responsibility for much of the theater logistics support of Air Force Component, Central Command (CENTAF) and MAARCENT. In preparation for G-Day, 29.6 million meals, 36 million gallons of fuel, and 114.9 thousand tons of ammunition were moved from the port to forward positions west of Wadi Al-Batin. These supplies had to be moved in a very short period; however, to preserve security, logistics bases could not be set up west of the Wadi Al-Batin before air operations began.

The plan for logistical support and sustainment envisioned moving all classes of supplies, but especially fuel, ammunition, food, and water, forward to the ground forces as they pushed into Iraq. The corps support commands (COSCOM) in turn received and moved these supplies and equipment forward to the appropriate division support commands (DISCOM). The DISCOM then sent these supplies to the respective forward support battalions which supported the ground maneuver forces. The plan for theater logistics sustainment further called for support to be echeloned forward to temporary logistics bases, as the battle unfolded and tactical objectives were seized. Logistics planning and sustainment below the theater level were conducted according to established doctrine.

Establishment of logistics Bases (see Enclosure A to Appendix 3 to lesson 1)

The establishment of logistics bases was a key feature of the plan. CSS assets were required well forward and positioned to sustain the momentum of the attack once the ground offensive began. TIC bases had to be able to sustain the combat forces in their initial deployment areas and serve as intermediate storage areas for supplies to be moved to sites west of the Wadi Al-Batin. These sites would, in turn, support operations into Iraq and Kuwait.

ARCENT established six sites to sustain the XVIII Airborne and VII Corps. In the I MEF area, four CSS areas were set up near the Kuwait border. All forward sites were stocked with bulk potable water, both bottled and from reverse osmosis water purification units, ammunition, equipment, food, petroleum, construction materials and spare parts for delivery forward as needed. At these forward

logistics sites, the components organized logistics units to support and sustain forward elements according to their assigned missions.

ARCENT's 22d SUPCOM shifted vast quantities of supplies to these bases in the west. The supply bases contained enough material to support combat operations for up to 60 days. Some were moved several times, first to the west and then north once the operation began. Several lessons emerged from planning for this initial shift, including the fact that US forces lack sufficient heavy equipment transporters (HETs) and trucks with off-road capabilities. Just one of the five heavy divisions, the 24th Infantry Division (Mechanized), for example, needed 3,223 HET, 445 lowboys, and 509 flatbed loads to move its heavy equipment from forward assembly areas into attack positions. The problem was further complicated because units arrived at the ports at irregular intervals. While trucks could be surged to meet arriving units, the limited road space on which to move them remained constant. The necessary trucks were obtained with other Coalition countries' help. HNS, Coalition forces' support, and support from non-traditional allies, including the former Warsaw Pact nations, were substantial and essential. Although the army sent considerable numbers of the most modern wheeled vehicles to the theater before Operation Desert Storm, off-road truck transport remained a problem throughout the ground offensive.

The extended maneuver of US ground combat units, characterized by rapid advance and continuous operations, was successfully sustained from the established logistics bases during the offensive. The greatest challenge for CSS operators at the logistics bases and supply operators with the maneuver units was trying to manage transportation assets effectively to ensure rapid resupply across the rapidly expanding battlefield. Keeping the combat vehicles supplied with fuel was the greatest challenge. The Heavy Expanded Mobility Tactical Truck (HEMTT) was one of the few vehicles that could keep going when rain turned roads into quagmire.

[Ground forces command structure: Enclosure B to Appendix 3 to adv sheet, lesson 1.]

[Task organization: Enclosure C to Appendix 3 to adv sheet, lesson 1.]

* * * * *

The Final Operational Plan

The final CINCCENT ground offensive plan involved several interrelated operations. ARCENT would lead the main effort XVIII Airborne Corps would attack in the west and deep into Iraq to control the east-west LOC along Highway 8 and cut off Iraqi forces in the KTO. VII Corps would conduct the main Coalition effort, attacking east of XVIII Airborne Corps and west of Wadi Al-Batin, driving to the north and then east to destroy Republican Guard forces. * * *

On the right flank, JFC-N, MARCENT, and JFC-E, would hold the enemy's tactical and operational forces in place by breaching Iraqi defenses in Kuwait and encircling Iraqi forces in the heel of Kuwait and Kuwait City. JFC-N would block Iraqi LOC north of Kuwait City. MARCENT would destroy enemy forces and seize key objectives southeast of Al-Jahra. MARCENT also would protect JFC-N's right flank. Navy and Marine forces in the Gulf would create a deception through amphibious exercises and feints before and during the ground offensive. JFC-E would protect MARCENT's right flank by destroying Iraqi forces and securing key objectives along the coast. Once Kuwait City was encircled and Iraqi forces were ejected or defeated, Arab-Islamic forces from both JFC-E and JFC-N, would liberate Kuwait City. CINCCENT initially designated the 1st Cavalry Division from Fort Hood, TX, as the theater reserve.

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To further confuse the Iraqis and perhaps draw off tactical and operational reserves, the ground offensive was to be sequenced. The XVIII Airborne Corps' 6th French Light Armor Division, 82nd Airborne Division, and the 101st Airborne Division (Air Assault) would attack at 0400 on G-Day, in the general direction of Baghdad and the lower Euphrates River to secure the left flank of the main attack. The Marines would attack at the same time, followed by the JFC-E on the coast. The I MEF's specific mission was to attack into Kuwait west of A1-Wafrah to hold and destroy Iraqi forces to their front, hold Iraqi tactical and operational reserves to prevent reinforcement of Iraqi forces in the West, block Iraqi forces' retreat from southeast Kuwait and Kuwait City and help Arab forces enter Kuwait City. The theater main effort, the VII Corps, was not intended to begin until G+1, followed an hour later by an attack from JFC-N forces.

The main attack was designed to avoid most fixed defenses, drive deep into Iraq, envelop Iraqi forces from the west and attack and destroy Saddam Hussein's strategic reserve- Republican Guard armored and mechanized infantry divisions augmented by several other Iraqi Army heavy divisions. This wide left sweep was sometimes referred to as the "Hail Mary" plan. * * *

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The Shift West of ARCENT Forces (See Enclosure D to Appendix 3 to adv sheet, Lesson 1)

Throughout December, the 22nd SUPCOM shifted supplies from the ports to bases near King Khalid Military City. From 17 January to 24 February, while the Coalition air forces waged the air operation, VII Corps, XVIII Airborne Corps, and other coalition elements moved more than 270,000 troops and supplies into position for the attack. XVIII Airborne Corps displaced approximately 260 miles and VII Corps maneuvered west over 100 miles in the same tactical formations that it would use to attack from south to north. This was done without HETs and was a corps level rehearsal for the actual attack. This movement, which continued 24 hours a day for more than three weeks before the start of the ground war, was one of the largest and longest movements of combat forces in history. The total number of personnel and amount of equipment exceeded that moved by General George S. Patton during his attack into the German flank at the Battle of the Bulge. Whole divisions and extensive support structures moved hundreds of miles, undetected by the Iraqis. The move was conducted on largely unimproved roads. The road network not only made repositioning physically difficult, but also complicated movement management. To avoid massive traffic jams, movement schedules were worked out to the last detail. In the dense traffic, vehicles were moving at 15 second intervals.

The tactical airlift fleet also supported the westward shift. C-130s established air tactical routings to Rafha, the XVIII Airborne Corps' destination, from airfields near the Corps rear staging areas. These routings were established at low altitudes to ensure the movement would not be detected by the Iraqis and to deconflict them with the near continuous flow of fighters to targets in Iraq. The C-130s averaged a takeoff and landing out of King Fahd International Airport every seven minutes, 24 hours a day, for the first 13 days of the move.

Once forces were at Rafha the C-130s helped build up the supplies, combat replacements, and the logistics bases. At log base Charlie, the combat engineers blocked a one mile strip of the Trans Arabian Pipeline (Tapline) Road to serve as an airstrip. Only nine miles from the Iraqi border, it was essential to get in and out quickly. Perhaps the most important cargo delivered was fuel. Aircraft equipped with special bladders brought in more than 5,000 gallons of fuel on each lift and pumped it into waiting fuel trucks.

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Preparing and Shaping the Battlefield

Preparation and shaping of the battlefield is intended to seize the initiative from the enemy, forcing him to fight in accordance with your plan rather than his, thus allowing the attacker to exploit the enemy's weaknesses and to maneuver more freely on the battlefield. The concept of preparation and shaping entails two aspects—physical degradation of the enemy's capabilities and psychological operations to deceive and demoralize the enemy. Both are carried out throughout the depth of the battlefield. Physical degradation requires extensive use of supporting arms and raids, both ground and air, to attack and destroy enemy abilities to conduct operations. PSYOPS attack the enemy's will to fight and deceive him, thereby forcing him to react to, rather than anticipate the actions of the attacker. Coalition air and ground forces extensively prepared and shaped the battlefield.

Deception Operations

CINCCENT placed a high priority on deception operations which were intended to convince Iraq that the main attack would be directly into Kuwait, supported by an amphibious assault. All components contributed to the deception operation. Aggressive ground force patrolling, artillery raids, amphibious feints and ship movements, and air operations all were part of CINCCENT's orchestrated deception operation. Throughout, ground force units engaged in reconnaissance and counter-reconnaissance operations with Iraqi forces to deny the Iraqis information about actual Coalition intentions.

For 30 days before the ground offensive, the 1st Cavalry Division conducted aggressive feints, demonstrations, and artillery raids in the direction of the Iraqi defenses nearest the Wadi Al-Batin. These activities reinforced the deception that the main attack would be launched directly north into Western Kuwait. It also held five infantry divisions and an armored division in place, well away from the actual VII Corps zone of attack.

I MEF also implemented a detailed deception operation. A series of combined arms raids, similar to those conducted in January, drew Iraqi fire, while PSYOP loud speakers broadcast across the border. For 10 days, Task Force (TF) Troy, consisting of infantry, armor, reconnaissance, engineers, Seabees and Army PSYOPS created the impression of a much larger force, engaging enemy elements in the Al-Wafrah area, conducting deceptive communications, and building dummy positions.

These operations complemented the deception effort carried out by amphibious forces off Kuwait's coast. The amphibious task force (ATF), assigned the mission of deceiving the Iraqis into expecting an assault against Kuwait, and conducting that assault should it become necessary, began posturing in the Gulf in mid-January. A well publicized amphibious rehearsal in Oman attracted media attention in the end of January while, simultaneously, Marines from the 13th Marine Expeditionary Unit (Special Operations Capable) conducted a raid on tiny Umm Al-Maradim Island off the Kuwait coast. As the ground offensive approached, the ATF moved into the northern Gulf, conspicuously preparing for a possible assault. Overall, the deception operation was key to achieving both tactical and operational surprise and, ultimately, the ground offensives' success.

Air Preparation of the Battlefield

CINCCENT established priorities for air preparation of the battlefield. Although the ground commanders made recommendations regarding targets and timing of the operation, CINCCENT aligned it with the overall theater plan. Ground tactical commanders found this discomfiting, since they were most concerned about the forces immediately to their front and had only limited information on how CINCCENT was using air power to shape the entire theater. Additionally, by CINCCENT direction, air operations did not initially emphasize destruction of front line Iraqi forces in the KTO until just before the ground offensive. This was done in part to enhance the deception plan. This also concerned the

ground commanders, who naturally wanted air power to degrade the Iraqi units immediately in their line of advance.

Coalition air forces flew more than 35,000 sorties against KTO targets, including more than 5,600 against the Republican Guards Forces Command (RGFC). The Service components nominated targets, but CINCCENT apportioned sorties, and the Joint Force Air Component Commander tasked them. Artillery, CPs, C² facilities, armor, and logistics installations were hit repeatedly. As the ground war approached, the percentage of sorties allocated to the destruction of Iraqi forces in the KTO increased.

In preparation for ground attacks in the eastern portion of the KTO, 3rd MAF used primarily AV-8Bs and F/A-18s to attack targets inside Kuwait. Priority was given to locating and destroying enemy artillery, armor and troops in the central and southern parts of Kuwait. Marine aviation intensified its attacks in Kuwait as the date for the ground offensive approached. By mid-February, 3rd MAF was used almost totally to prepare the battlefield. Aircraft were kept on continuous alert to provide immediate CAS and to respond to enemy sightings, artillery attacks and Iraqi cross-border incursions.

Ground Preparation of the Battlefield

Iraqi artillery was a primary objective in the battlefield preparation. Iraqi artillery, modern by any standard often out-ranged Coalition guns, and had been effective in the Iran-Iraq war. While the Coalition could hold Iraqi maneuver forces in position; left unchecked, Iraqi artillery alone might disrupt the Coalition ground assault. Properly used, enemy artillery could have delayed breaching operations long enough for some Iraqi units to counterattack. Additionally, there was a real concern that Iraqi commanders might use artillery-delivered chemical weapons. Accordingly, Iraqi artillery, particularly their most modern systems, were high priority targets during Phase III of the theater campaign. Air, attack helicopters and Multiple-Launch Rocket Systems (MLRS) were used to destroy enemy artillery. 3rd MAF AV-8Bs and F/A-18s, assisted by Marine unmanned aerial vehicles (UAVs) and airborne FACs, searched out batteries for destruction. The Army and Marines also conducted many artillery raids to destroy Iraqi artillery.

Reconnaissance and Counter-Reconnaissance

During the air campaign, ground forces conducted extensive reconnaissance to determine the extent and locations of Iraqi obstacles and defensive positions and counter-reconnaissance operations to deceive the enemy regarding Coalition forces disposition. Ground forces conducted raids, patrols, feints and long-range reconnaissance.

Both air and ground maneuver benefited from Army aviation reconnaissance in depth. Attack, scout, and special operations aircraft performed repetitive armed reconnaissance missions in each division zone for days before the ground offensive. Even with the array of deep acquisition platforms, one of the most reliable and timely sources of battlefield information for tactical commanders was human source intelligence (HUMINT) provided by aviation.

Another innovative approach was the extensive use of helicopters to locate Iraqi observation posts and CPs. Flying at night, Army and Marine observation and attack helicopters found and destroyed these positions using Hellfire and other laser-designated munitions such as Copperhead. The same tactics proved effective for air defense sites, and contributed to joint suppression of enemy air defense activities.

On the left flank, in the days immediately before the ground offensive, XVIII Airborne Corps conducted aerial and mounted raids deep into Iraqi territory to hit armor, artillery, bunkers, and observation posts. The XVIII Airborne Corps reported, that in one armed aerial reconnaissance operation on 20 February, the 101st Airborne Division (Air Assault) aviation brigade destroyed 15 bunkers with air

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and TOW missile fire and induced 476 Iraqis to surrender. The division, with attack helicopter support, sent CH-47 Chinook helicopters and troops forward to gather the EPWs. By 22 February, 82nd Airborne Division helicopters were penetrating deep into Iraqi territory in daylight.

* * * * *

The Threat * * *

Iraqi defensive Positions and Plan (see Enclosure E to Appendix 3 to Advance Sheet. Lesson 1)

As discussed earlier, the Iraqi Army was prepared to defend the KTO. Operational and tactical level plans existed, preparations for contingencies were made and executed, and, while some units in the forward areas were composed of second class troops, many Iraqi regular and heavy units put up a fight. The Iraqi defensive strategy, however, was not prepared for the Coalition's offensive strategy. The Iraqi assumption that the tactics used in the Iran-Iraq War would be applicable against the Coalition proved faulty, as did their assumption that the attack would be terrain-oriented in support of the Coalition's political goal of liberating Kuwait. Further, once the air war began, Iraqi tactical intelligence became virtually blind. Most importantly, Iraqi defensive planning was rendered ineffective due to the speed, maneuver, firepower, and technological advantages of the Coalition offensive, which surprised and overwhelmed the Iraqis.

The Iraqis prepared for the expected assault into Kuwait in a manner that reflected the successes of their defensive strategy during the Iranian War. They constructed two major defensive belts in addition to extensive fortifications and obstacles along the coast. The first belt paralleled the border roughly five to 15 kilometers inside Kuwait and was composed of continuous minefields varying in width from 100 to 200 meters, with barbed wire, antitank ditches, berms, and oil filled trenches intended to cover key avenues of approach. Covering the first belt were Iraqi platoon and company-size strongpoints designed to provide early warning and delay any attacker attempting to cut through

The second obstacle belt, up to 20 kilometers behind the first, began north of A1-Khafji and proceeded northwest of the A1-Wafrah oilfields until it joined with the first near A1-Manaqish. This second obstacle belt actually constituted the main Iraqi defensive line in Kuwait. Obstacles and minefields mirrored those of the first belt. They were covered by an almost unbroken line of mutually supporting brigade-sized defensive positions composed of company trench lines and strongpoints. The minefields contained both antitank and antipersonnel mines.

The Iraqi tactical plan was designed to slow the attacker at the first belt, to trap him in prearranged kill zones between the two belts, and to destroy him before he could break through the second belt. Any attacking forces able to breach the second belt would be counterattacked immediately behind the strongpoints by division and corps level armor reserves.

Iraqi Combat Effectiveness

One objective of the initial phases of the theater campaign was to shift the balance of forces more in favor of the Coalition; this goal was achieved. In all, almost 100,000 total combat and support sorties were flown and 288 Tomahawk land-attack missiles launched during the first three phases of the campaign. Of the total sorties flown, 60 percent were combat missions. Damage to Iraqi forces was extensive, and Iraqi C² was severely degraded. Saddam Hussein's ability to direct his fielded forces was impeded and in many cases, forward corps, division and brigade commanders lost touch with their subordinate commands. Large amounts of equipment were damaged or destroyed. Vast stockpiles of Iraqi supplies, positioned to support the KTO were destroyed and the road nets on which replenishment had to pass were degraded. Air operations against fielded forces, in conjunction with PSYOPS, helped

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sap Iraqi morale. Phase III of the campaign greatly reduced Saddam Hussein's ability to bring the strength of his army to bear against the Coalition ground forces.

At the end of more than a month of bombardment, Iraqi forces remained in Kuwait: many, particularly in the front line units, were in poor condition, with their ability to coordinate an effective defense along the border severely reduced. When the ground war started, CINCCENT assessed that, largely through the results of the Coalition air operation, the overall combat effectiveness of the opposing Iraqi forces had been reduced by about half.

It should be noted that while the forward infantry divisions suffered high attrition, a substantial portion of the more capable units, such as the Republican Guards, and Iraqi armored and infantry divisions to the west and north, still were combat effective. This was, in part, the result of a conscious decision to target the forward defensive positions as a part of the deception plan. As the ground offensive unfolded, many Republican Guards units and other forces to the west and north, even though they were surprised by the advancing Coalition formations, retained much of their combat capability and put up a fight.

Iraqi Buildup in KTO

* * *

- *Over 545,000 Iraqi Troops in Kuwait Theater*
- *Approximately 43 Division*
- *Estimate:*
 - 4,280 Tanks*
 - 3,100 Artillery*
 - 2,800 APCs*

* * * * *

* * * The 45th Mechanized Division south of As-Salman was estimated to be at 50 to 75 percent strength as were the 12th, 52nd, 17th and 10th Armored divisions, the tactical reserves. The two most western Republican Guards divisions, the Tawakalna Mechanized and Al-Madinah Armored divisions, were estimated to be at 50 to 75 percent effectiveness. The general assessment was that the tactical echelon and artillery were severely degraded, the operational echelon's sustainment capability had been eliminated, and the Republican Guard somewhat degraded,

Iraqi ground forces in the KTO included elements of up to 43 divisions, 25 of which were assessed as committed. 10 the operational reserve and eight the strategic reserve. Some independent brigades were operating under corps control. The RGFC and Iraqi Army heavy divisions remained deployed in defensive positions behind the tactical and operational forces. On the eve of the ground offensive the Iraqi forces were arrayed on the ground

Despite these assessments, the Iraqi military weaknesses were not so apparent to the ground commanders. They saw an Iraqi force of up to 43 divisions in the theater, arrayed in depth and with strong operational and tactical reserves. Dug-in infantry was reinforced by revetted tanks and artillery, all backed by armored reserves of brigade strength or larger. In central Kuwait, roughly in the area between Ali As-Salim airfield and the Kuwait International Airport, one armored and two mechanized divisions formed strong corps-level reserves with additional armored forces to the northwest of Al-Jahra. Along the beaches, in testimony to Iraqi fear of an amphibious assault, no fewer than four infantry divisions and a mechanized division occupied positions behind minefields and obstacles. Finally, along

the Iraq-Kuwait border, at least six Republican Guards divisions and other armored, mechanized, and infantry divisions were poised to counterattack. On the eve of the ground offensive, Coalition planners thought nearly 450,000 Iraqi troops remained in the KTO.

* * * * *

Disposition of Coalition Forces on the Eve of the Ground Offensive

When the ground offensive began Coalition forces were poised along a line from the Persian Gulf 300 miles west into the desert, in four major formations (See Enclosure F to Appendix 3 to adv sheet, Lesson 1)

Army Component, Central Command

ARCENT, which consisted of the XVIII Airborne Corps and VII Corps, was on the western flank of the theater. Positioned on ARCENT's left flank was the XVIII Airborne Corps; VII Corps was to the right. These two corps covered about two thirds of the line occupied by the multi-national force.

Joint Forces Command-North

JFC-N, in the center, consisted of the 3rd Egyptian Mechanized Division, the 4th Egyptian Armored Division, the 9th Syrian Division, the Egyptian Ranger Regiment, the Syrian Special Forces Regiment, the 20th Mechanized Brigade, Royal Saudi Land Forces (RSLF), the Kuwaiti Ash-Shahid and Al-Tahrir Brigades, and the 4th Armored Brigade (RSLF).

I Marine Expeditionary Force

I MEF, on the right of JFC-N, had the 2nd MARDIV, with the attached Tiger Brigade on the left and the 1st MARDIV on the right. The 5th MEB, coming ashore at Al-Jubayl and Al-Mishab and Staging near Al-Khanjar, acted as the MEF reserve. 3rd MAW flew from bases in Saudi Arabia and Bahrain, basing AV-XBs and attack helicopters forward at Tanajib and Al-Khanjar, respectively.

Joint Forces Command-East

On the right flank, along the coast, JFC-E anchored the Coalition line. Like JFC-N, JFC-E was under the command of Saudi Lieutenant General Khalid bin Sultan. JFC-E consisted of units from all six Gulf Cooperation Council (CCC) member states. There were three task forces-TF Omar, consisting of the 10th Infantry Brigade (RSLF) and an United Arab Emirates (UAE) Motorized Infantry Battalion; TF Othman, consisting of the 8th Mechanized Infantry Brigade (RSLF), an Omani Motorized Infantry Battalion, Bahrain Infantry Company, and the Kuwaiti Al-Fatah Brigade; TF Abu Bakr with the 2nd Saudi Arabian National Guard (SANG) Motorized Infantry Brigade and a Qatar Mechanized Battalion.

CONDUCT OF THE GROUND OFFENSIVE

At 0400 24 February, the ground assault to liberate Kuwait began CENTCOM unleashed combined arms attacks against Iraqi forces at three points. In the far west, the French 6th Light Armored Division, (with the 2nd Brigade, 82nd Airborne Division under its operational control), and 101st Airborne Division (Air Assault) conducted a massive air and ground envelopment to secure the Coalition western flank and establish forward Support bases deep in Iraq. In the center of the Coalition line, along the Wadi Al-Batin, the dry, ravine that separates Kuwait from Iraq, the 1st Cavalry Division, the theater

reserve, feinted an attack north toward a heavy Iraqi concentration. In the cast, I MEF and JFC-E, attacked north into Kuwait.

G-Day (24 February)--The Attack and the Breach

Enemy Actions and dispositions

When the ground offensive started, Iraqi ground forces remained in defensive positions in the KTO. There were no indications of any Iraqi troop withdrawal. Iraqi front line units, including the 7th, 14th and 29th Infantry divisions in the I MEF zone and the 19th Infantry Division in the JFC-E zone, offered sporadic, but sometimes stiff, resistance. These forces were bypassed, withdrew or surrendered. Despite these initial setbacks, the Iraqi III Corps, opposite I MEF and JFC-E and the Iraqi IV Corps, generally opposite JFC-N, still could counterattack with units from the 3rd Armored Division south of Kuwait International Airport. However, the large number of III Corps soldiers surrendering suggested many had lost the will to fight. For the Iraqis to stop the Coalition ground offensive, mobile forces would have to leave their revetted positions, making them vulnerable to Coalition air attack.

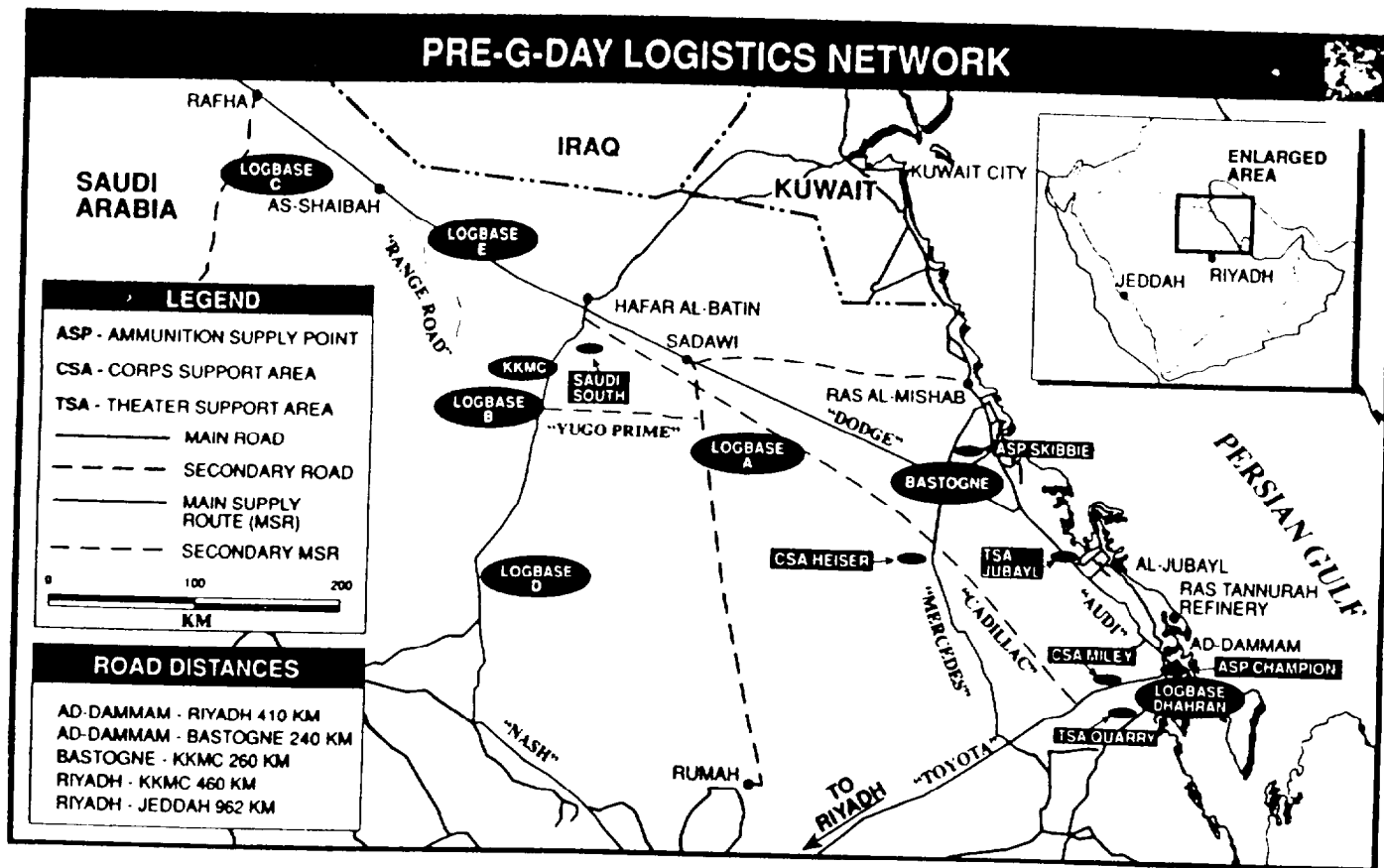
Iraqi artillery fired at Coalition forces during the ground offensive was persistent but inaccurate. The Iraqis appeared to fire on known points, but did not shift or follow targets. The infantry fought initially, but surrendered when Coalition forces approached their positions. Coalition forces found ammunition stored throughout the trenches. The front line infantry forces' performance demonstrated serious shortcomings, particularly in coordinated indirect fire, air defense, and morale. Perhaps Iraqi commanders anticipated difficulties since intelligence sources indicated some RGFC artillery units were assigned to regular army divisions in southeastern Kuwait.

Enemy prisoners of war (EPWs) and deserters who crossed the Saudi border before the ground offensive began complained of the lack of food and water and poor sanitation. A former battalion commander reported morale was poor, and he had not communicated with his brigade since the end of January. Expressing surprise that Americans were in front of his forces, he lacked specific Coalition force dispositions. This illustrates Iraq's weak battlefield intelligence capabilities, the breakdown of communications with higher headquarters, and the success of the Coalition in achieving surprise.

COMBAT OPERATIONS

Lesson 1. United States Army Doctrine

Enclosure A to Appendix 3 to Advance Sheet, Lesson 1, Pre-G-Day Logistics Network



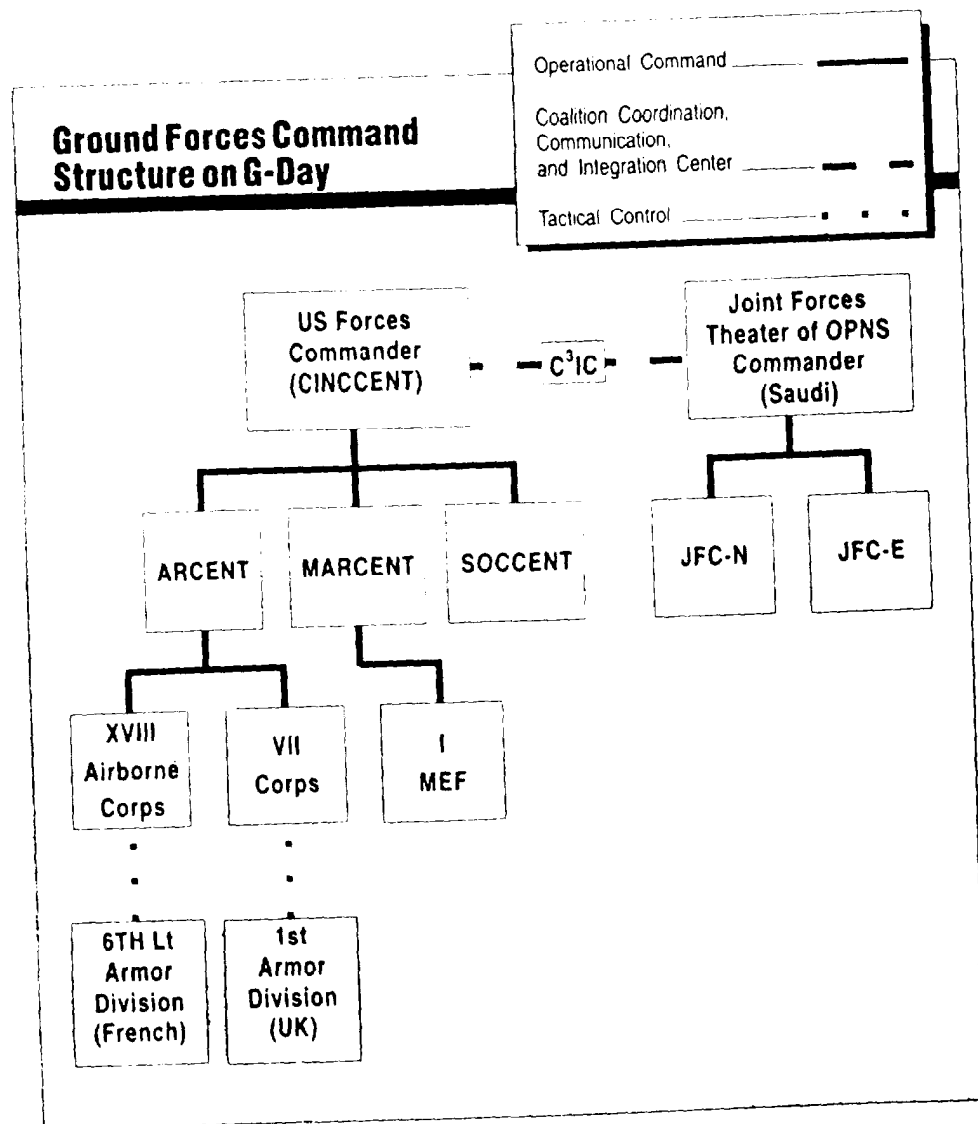
From *Certain Victory: The US Army in the Gulf War, 1993*, p 78.

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COMBAT OPERATIONS

Lesson 1. United States Army Doctrine

Enclosure B to Appendix 3 to Advance Sheet, Lesson 1. Ground Forces Command Structure



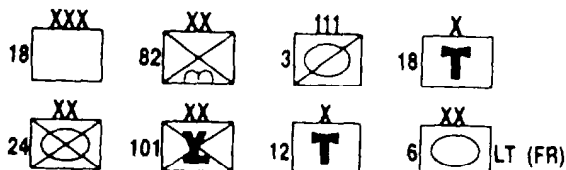
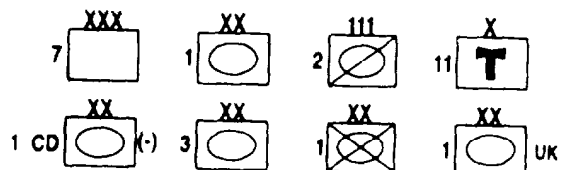
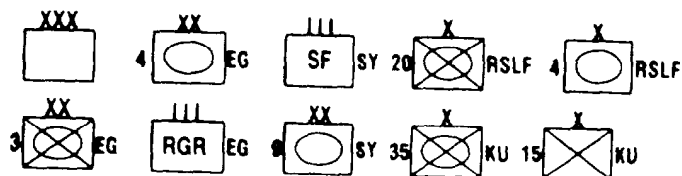
From *Title V Report to Congress: Conduct of the Persian Gulf War*, 1993, p 232.

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COMBAT OPERATIONS

Lesson I. United States Army Doctrine

Enclosure C to Appendix 3 to Advance Sheet, Lesson 1. ARCENT Task Organization

ARCENT**XVIII AIRBORNE CORPS****VII CORPS****JFC - N****MARCENT****JFC-E**

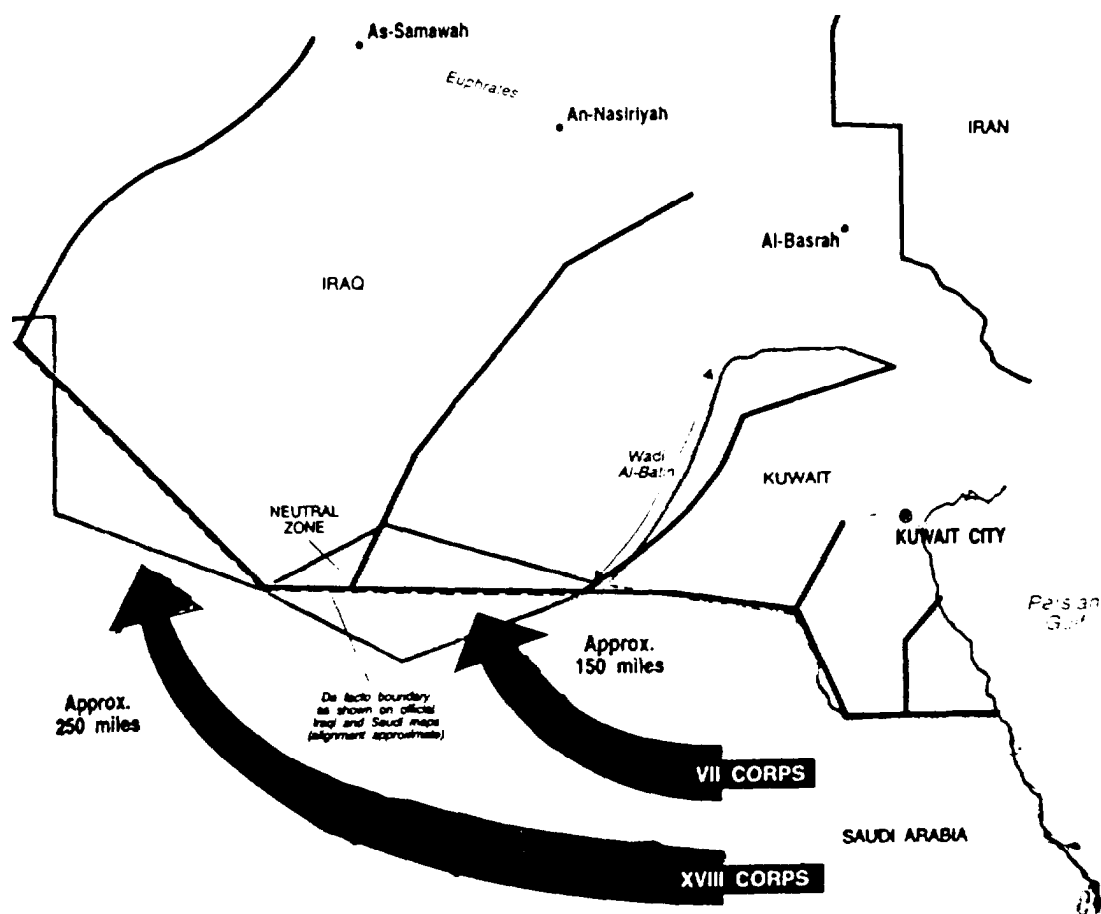
From *Title V Report to Congress: Conduct of the Persian Gulf War, 1993*, p 234.

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COMBAT OPERATIONS

Lesson I. United States Army Doctrine

Enclosure D to Appendix 3 to Advance Sheet, Lesson 1. The Shift West



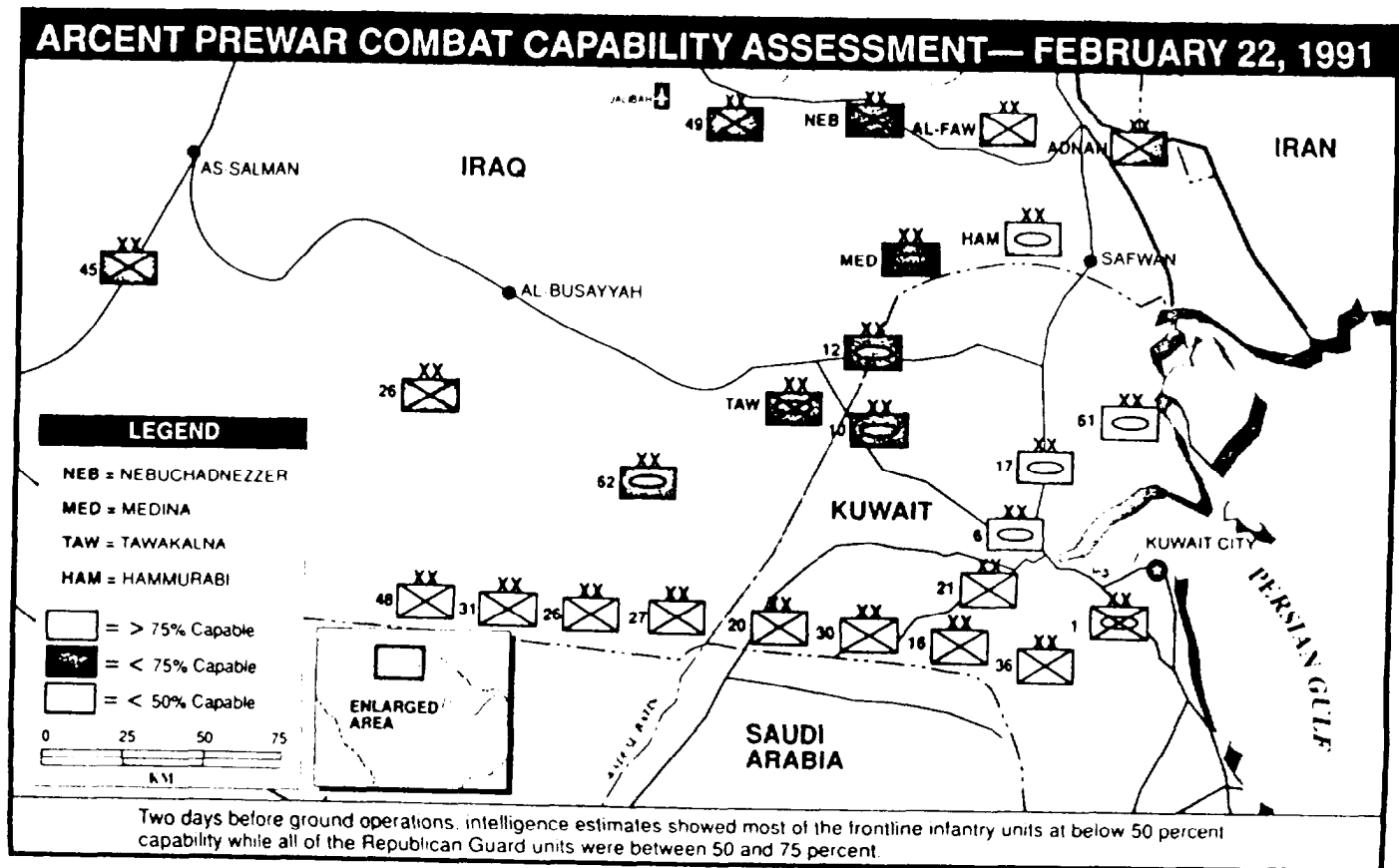
From *Certain Victory: The US Army in the Gulf War*, 1993, p 247.

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COMBAT OPERATIONS

Lesson 1. United States Army Doctrine

Enclosure E to Appendix 3 to Advance Sheet, Lesson 1. Iraqi Prewar Combat Capabilities



From *Certain Victory: The US Army in the Gulf War*, 1993, p 208

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Lesson 1. United States Army Doctrine

The map displays the borders of Iraq, Iran, Saudi Arabia, and Kuwait. Key locations include As-Samawah, An-Nasiriyah, Al-Basrah, and Kuwait City. A Neutral Zone is indicated between Iraq and Kuwait. Military units are represented by various symbols and codes:

- XVIII ABN CORPS**: Includes units like 18, 24, 82, 101, and others.
- VII CORPS**: Includes units like 7, 1 CD, and others.
- JFC-N**: Includes units like 3, 4, 15, 9, and others.
- MARCENT**: Includes units like 1, 2, 3, and others.
- JFC-E**: Includes units like 1, 2, 3, and others.

A note at the bottom states: "Boundary representations are not necessarily authoritative."

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COMBAT OPERATIONS**Lesson 1. United States Army Doctrine**

Appendix 4 to Advance Sheet, Lesson 1: VII Corps Operations

VII CORPS COMMANDER'S CONCEPT

Franks' plan was for the 1st Infantry Division to conduct the breach of Iraqi defenses in a deliberate, carefully rehearsed, and heavily supported attack. Originally, the entire corps was supposed to pass through the lanes opened by the "Big Red One," but by the start of air operations the Iraqis had failed to extend their defenses to the west, leaving that area relatively undefended. Franks, in a move that showed great adaptability, flexibility, and confidence in his subordinate leaders, decided to modify the plan by slipping the 2d ACR and the 1st and 3d Armored Divisions around the west of the breach. He kept the brunt of his initial attack on his right with the 1st Infantry Division's breach against the Iraqi 26th and 48th infantry Divisions. Once the breach was complete, the British 1st Armoured Division would thrust through the opening and turn sharply, east to destroy the waiting second-echelon forces and spoil any Iraqi plan to spring a two-division armored ambush against the right flank of VII Corps.

The movement of the two US armored divisions forward into the battle area would be controlled, deliberate, and cloaked from enemy view by the advance of the 2d ACR. While the breach and the move on the west were independent actions, the attack on the Republican Guard depended on the success of both operations. The breach was necessary to provide a secure conduit for the heavy logistical forces required to support the advance of the corps. If the Iraqis were able to oppose delay the advance on the west of the breach, the whole main attack could be jeopardized. Momentum was key. Once the breach site was secure, Franks would form his corps into a tightly clenched fist to shatter the Guard in a massive blow. More than any single factor, the momentum of the armored advance depended on logistics. An armored corps in the attack has a voracious appetite for fuel and ammunition. Franks insisted on no operational pauses until the Republican Guard was destroyed. Any operational pause would take away this key timing edge and allow the Guard to set its defenses. A stable, unbroken enemy would only cause more delay and more casualties. VII Corps units could halt briefly to realign themselves or refuel on the move, but the momentum of the corps would continue unrelentingly until soldiers, supplies, and fuel were exhausted.

Despite the Iraqi border units' continued poor performance in early skirmishes, uncertainty remained. Franks went everywhere in the corps, seeing commanders, checking signals, and talking to soldiers. Franks had one of the most powerful corps the American Army had ever fielded. With three modern armored divisions—the 1st, the 3d, and the British 1st; the 1st Infantry Division (Mech); the 2d ACR; the 11th Aviation Brigade; the 42d, 142d, 75th, and 210th Field Artillery Brigades; the 7th Engineer Brigade; and a host of Active and Reserve component combat support and combat service support units, the corps boasted almost 145,000 men, more than 45,000 vehicles, and more than 600 aircraft.

From *Certain Victory The US Army in the Gulf War*, by BG Robert H. Scales, Jr. Office of the Chief of Staff, United States Army, Washington, D.C., 1093, pp 216-316.

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VII CORPS: DECEPTION AND PREPARATION OF THE BREACH

* * * Yeosock placed the 1st Cavalry Division and the 2d Brigade, 101st Airborne Division, under the operational control of VII Corps to protect Tapline Road during XVIII Airborne Corps' move to the west. Franks seized that opportunity to move the 1st Cavalry Division well forward along the Wadi al-Batin just west of the Egyptian Corps. This move not only secured the line of communication, it also freed the 3d Armored Division from its counterattack mission enabling it to move west with the rest of VII Corps. Furthermore, it allowed Franks to conduct raids and feints to reinforce the deception effort and destroy Iraqi artillery.

Beginning on February 7, VII Corps Artillery and the 1st Cavalry Division began a series of artillery raids near the Wadi al-Batin. The raids served three essential purposes. First, Franks believed they would give the Iraqis another reason to think that the main Coalition attack would come up the wadi. Second, just as he insisted on a pre-G-Day rehearsal for maneuver, Franks knew the raids would provide the opportunity to shake out fire support, including strategic and tactical air power as well as rockets and artillery. Third, Franks intended the raids to take down completely all Iraqi guns within range of the wadi. He remained most concerned about the danger posed by Iraqi artillery. The Air Force had done a good job so far in killing some artillery, but revetted guns were the hardest target for air power to kill and many batteries remained intact.

The most efficient way to kill artillery is with other artillery. * * * Of all the Iraqi branches, the engineers and artillery came into the conflict with the best reputation for professionalism, and the overall quality of the artillery weapons was second to none. Of the artillery capable of reaching the breach, most were towed howitzers arrayed in a roughly continuous belt of guns 14 to 20 kilometers north of the berm. The majority of self-propelled artillery remained farther to the rear with the operational and theater reserves. Brigadier General Creighton Abrams, Jr., the VII Corps artillery commander, kept his shorter-ranged tubes well back in assembly areas. To reach the Iraqis during the raids, they were obliged to march to the southern edge of the berm, fire, and then withdraw.

General Tilclli's 1st Cavalry Division fired the opening round of the pre-G-Day firepower battle on February 7. At 1400, an artillery forward observer FIST-V cased up just behind the berm, raised its "hammerhead" sight, and lased an Iraqi observation tower 5 kilometers to the north. These 40-foot-high towers were a particular nuisance because in the flat terrain they could see as far as 30 kilometers into the American sector. They were so small that neither "dumb" artillery projectiles nor bombs could hit them. A 155mm howitzer located 10 kilometers to the rear fired a single laser-guided Copperhead projectile. Thirty seconds later the first of seven towers disappeared in a flash of light and black smoke. An adjacent battery followed the Copperhead shot by dropping 400 bomblets on the target, killing anyone near the tower.

On February 13, artillery action accelerated with a carefully choreographed raid conducted by three MLRS batteries, two from the 42d Field Artillery Brigade and one from the 1st Cavalry. At dusk, the three batteries-27 launchers in all-crept up to the berm. The crews in 18 launchers punched previously located targets into their fire-control computers and the huge box-like launch pod containers, each holding 12 rockets, automatically stewed toward the targets. At precisely 1815, soldiers standing at the berm watched as 216 rockets rippled away with successive roars, leaving behind white smoky fingers pointing toward Iraq. A few seconds later, a succession of white puffs appeared just above the horizon as warheads popped open to disgorge 140,000 bomblets on top of the hapless Iraqi batteries. Launcher

crewmembers nicknamed the MLRS “the grid square removal system” for good reason. The third MLRS battery was linked directly to the Q37 counterbattery radar. Should the Iraqi artillery shoot back, only a few seconds would be needed for the radar to pinpoint the target and the rocket battery to smother it with another 70,000 bomblets. In this engagement and in all subsequent artillery ‘ambushes executed before G-Day, the Iraqis never took the bait. Relief among VII Corps artillerymen was mixed with curiosity. What had happened to Saddam’s most fearsome arm’?

In a word, Saddam’s artillerymen had simply failed to make technological improvements in their over-the-hill gunnery that had been available for 20 years. Surprising their Israeli opponents, the Egyptians dramatically demonstrated the precision-guided munitions revolution in the opening tank and antitank missile engagement in the October ‘73 War. The precision revolution progressed more slowly to indirect fire because to hit an unseen target with the first round required refinements in the ability to locate both the target and the firing position, as well as the ability to predict very accurately the ballistic course of a projectile. Ballistic refinement arrived with the development of digital fire-control computers, precise weather-measuring devices, and devices to measure the velocity of a projectile in flight. Target-acquisition radars, laser range finders, and the now indispensable GPS allowed a similar precision in locating targets and firing positions. If all of the parts are assembled and employed properly, the radius of error for a “dumb” artillery projectile is easily cut in half. DPICM or bomblet artillery munitions, in turn, have almost tripled the kill radius for artillery. This quantum jump in precision and lethality meant that for the first time in history the artillery kill radius was greater than its radius of error. In other words, if American artillery shot at an Iraqi position, it died. Iraqi artillery, on the other hand, possessed long range but little else. The Iraqis avoided activating what few artillery radars they did have for fear of immediate detection and destruction. They had failed to invest in the technology necessary to achieve a first-round kill, learning the hard way that range without precision is no advantage at all.

The biggest pre-G-Day, firepower raid occurred on the night of February 16 and early morning of February 17 with a combined artillery and attack helicopter feint by VII Corps artillery and the Apaches of 2-6th Cavalry from the 11th Aviation Brigade. Five battalions opened a 2-kilometer-square corridor by saturating the Iraqi air defenses with artillery fire. Five kilometers into Iraq, Lieutenant Colonel (Ten) Branham’s squadron fanned out into a line about 15 kilometers wide. Artillery continued to pound targets on the sides of the formation and beyond the objective area.

Branham’s Apache crews selected their targets 10 kilometers from the objective and then waited to reach a prearranged firing line 2 kilometers farther north. The squadron moved forward at just under 30 knots and fired continuously for nearly five minutes. Each troop and crew worked its sector of the target area, a line of towers and communications buildings. After five minutes, the Apaches broke for the border, reaching it within seconds of the planned recrossing time. Franks and Abrams observed the feint from the 1st Cavalry Division Artillery command post. Linked to the corps deep battle cell and the 11th Brigade command and control aircraft by TACSAT, the entire operation was a carefully rehearsed drill for later deep attacks. Just before the attack began, an orbiting electronic warfare aircraft hit on an active Iraqi antiaircraft radar directly in the planned path of the Apaches. A quick adjustment to the fire plan sent 12 MLRS rockets to turn off the radar permanently.

As the pre-G-Day raids progressed, problems began to appear. The first was with targeting. Wide-area satellite imagery could only locate Iraqi artillery to within about 400 meters. To hit the target reliably with artillery required a precision of at least 100 meters. Therefore, while imagery might provide a wealth of information, each prospective target identified on available satellite photos had to be confirmed by a second, more precise locating source before it could be hit. The preferred method was to

overfly an area with one of the UAVs assigned to VII Corps. To keep up with the demand for target-quality intelligence, Franks decided to use his drones for targeting first and intelligence collection second. Battle damage assessment, however, remained a nagging problem; not enough UAVs were available both to target the enemy and to reassess previous strikes. If the target was moving, JSTARS also gave great precision, but the firing unit had to be readily available to engage the target quickly. Should the enemy artillery open fire, counterbattery radars provided the most precise and immediate locations.

The many layers of bureaucracy charged with integrating the indirect fire support function frustrated early attempts to establish a responsive indirect fire program. Too often, important targets such as FROG rocket battalions moved before they could be targeted. Once struck, BDA was still a problem and VII Corps was never able to determine accurately how many tanks and artillery pieces remained in its path. To improve indirect fire support, Abrams and his deputy commander, Colonel Raymond Smith, who served as the corps fire support coordinator, empowered junior staff officers to order indirect fire strikes themselves by comparing detected targets with a current target priority list. If the target met the engagement criteria, the officers could attack it.

The last major deception effort occurred on February 20 and involved Colonel Randolph House's 2d Brigade, 1st Cavalry Division, in a reconnaissance-in-force maneuver directly into the Wadi al-Batin. On the evening of the 19th, Lieutenant Colonel Michael Parker's 1-5th Cavalry, sent a company across the berm to check out crossing points and to look for mines. The rest of the 2d Brigade jumped off at noon. Ten kilometers into the wadi, 1-5th Cavalry engaged an Iraqi infantry battalion supported by tanks, BMPs, and artillery. A Company led the 1-5th Cavalry's diamond formation with its Bradleys and made first contact. The trailing tank companies pulled up alongside and supported the infantry fighting vehicles, hammering the position with main-gun fire. Finishing the action soon appeared to be just a matter of rounding up prisoners from a nearby bunker complex. * * *

The combat was not one-sided. Since February 7 when Tilelli's division began probing the wadi, the Iraqis had reinforced the area. Under cover of darkness, they brought in additional artillery and antitank guns. They dug an AT-12 battery of 100mm antitank guns in along the shallow walls of the wadi. The Iraqi gunners allowed the 1-5th Cavalry's point element to pass and waited for the initial action to wind down before they engaged the middle of the formation from the flanks. The 100mm guns hit three of the brigade's vehicles, a Vulcan carrier and two Bradleys, and an M-1A1 tank struck a mine. Three American soldiers were killed and another nine wounded. House extracted the brigade after destroying the AT-12s with a combination of A-10 aerial attacks and indirect fire. * * *

Despite its cost, the action guaranteed that the Iraqis would continue to look for the main attack through the Wadi al-Batin. It also proved conclusively that at least some Iraqis were still willing to fight after 33 days of air attack. This was a valuable lesson that Franks discussed with his commanders. If the Iraqis were given time to organize a defense and if friendly attacking formations drove into that defensive zone, losses could still be high. This reinforced the need for speed and a massed fist to attack the Republican Guard before they could react and reorient their defenses against the main attack.

CENTCOM: G-DAY, MIDMORNING

At the other end of the CENTCOM-directed assault, the third-class Iraqi frontline troops had put up practically no resistance. Their artillery fire was sporadic and inaccurate. Friendly counterfire quickly silenced the Iraqi guns. The dreaded chemical attacks never came. Soldiers and marines found positions

empty and the world-class obstacle system uncovered by fire. Tactical armored reserves, crippled by air attack, failed to counterattack in any coherent fashion Saddam's frontline infantry divisions collapsed into disorganized rabble. Almost immediately, the problem for advancing forces was to capture and tag enemy prisoners and herd them back toward Saudi Arabia like cattle. * * *

As reports of the opening moves filtered back, Schwarzkopf formed an unexpectedly encouraging view of the battlefield. That the Iraqis had not, as yet, retaliated with chemical or biological weapon brought the greatest relief. The Iraqi operational reserves--armored forces traditionally held back as a counterattack force--were caught off-guard by the crumbling of the forward defenses. Schwarzkopf wanted to accelerate the attack to exploit the Iraqi weakness, but changing the basic plan would mean shifting gears in a machine with more than 300,000 moving parts. Simply sticking to the plan was easier; changing it at the last minute was infinitely more difficult. However, as Schwarzkopf considered his options, electronic intelligence provided a key piece of information: confusion and disarray existed within the 3d and 4th Iraqi Corps in southern Kuwait. Armed with this information, Schwarzkopf called Yeosock and Luck to ask if they could mount their attacks on February 24 rather than February 25.

At ARCENT, General Stewart confirmed Schwarzkopf's view. JSTARS had tracked opening attacks into the Iraqi defenses. No Iraqi reaction had developed by, the time the French had engaged south of as-Salman and the 101st had occupied FOB Cobra. In VII Corps, the 1st Infantry Division had penetrated and seized the Iraqi security zone without difficulty.

Yeosock relayed the question to Franks who conferred with his subordinate commanders. They agreed that, given minimum notice, their divisions could launch early without major problems so long as the attack occurred no later than 1400. * * * They wanted to penetrate the Iraqi 26th and 48th Infantry Divisions' main line of resistance in daylight. Thus every hour of daylight gained on February 24 was crucial. * * *

* * * * *

* * * Schwarzkopf accepted inherent risks and accelerated the attack timetable. All units would attack at 1500.

Adjustments were considerable but not impossible. Schwarzkopf told Colonel Jesse Johnson, the SOCCENT commander, to use his Special Forces advisors with JFC-North to help the Arabs. The British 1st Armoured Division had originally intended to use this last day to transport their armor into position on HETs. Having no time now to upload and download HETs, they conducted a grueling and mechanically debilitating 100-kilometer march across the desert to the breach site. Fuel tankers, previously positioned forward to top off the column just prior to the attack, had to race back to logistics bases along Tapline Road to finish the process. All across the CENTCOM front, thousands of soldiers changed plans and made adjustments as the pace dramatically quickened.

VII CORPS: G-DAY (map at Enclosure A)

Schwarzkopf's decision to attack early affected VII Corps more than any other unit because the corps had to move faster and farther to get into attack position. Since the breaching operation was very complex and time-dependent, any change in schedule, however small, would put considerable strain on those responsible for coordinating the overall effort. AirLand Battle doctrine, however, envisions initial

combat orders as only a guide to be amended as required by the tactical situation, and the corps was accustomed to reacting to last-minute changes. The overall command intent was to strike quickly and to finish the enemy rapidly. The acceleration of the attack timetable supported that intent. Indeed, Colonel Holder's 2d ACR was already positioned 10 kilometers deep into Iraq ready, to continue the advance. Administrative complications did arise, but subordinates used their own initiative to solve those problems. By 1430, the corps was on the march.

2d Armored Cavalry Regiment: G-Day

Holder's 2d ACR would be VII Corps' lead scout. Franks' mission to the regiment was twofold: to clear the zone in front of the 1st and 3d Armored Divisions and, most importantly, to discover the exact outline of the Republican Guard's main line of defense so that the two following armored divisions could aim directly toward it. For the most part only the Republican Guard possessed the T-72 tank, which meant that Holder would be able to pinpoint the center of gravity, of the entire operation when his squadrons began to report engagements with T-72s.

At dawn on the 24th, the regiment was already positioned over the berm, arrayed across a 40-kilometer front. The corps screen would begin with a thin line of Bradleys and an aerial picket of Cobra helicopters from the 4th Squadron, which began to feel its way forward at 1430. Two squadrons, the 1st and 3d, followed on-line 10 kilometers behind in a thicker formation of Bradleys and M-1s. Holder's direct firepower was augmented with three additional battalions of the 210th Field Artillery Brigade, in addition to the regiment's own three howitzer batteries. Eighteen Apaches, 13 OH-58s, and 3 Blackhawks of the 2-1st Aviation, borrowed from the 1st Armored Division, augmented the aerial eyes and killing power of the 4th Squadron. To be absolutely sure that he would not be surprised or outmatched by the Iraqis in his path, Holder established a remarkably effective distant aerial screen using Air Force A-10s. The aggressive regimental air liaison officer, Air Force Captain Chris Kupko, continually vectored A-10s toward on-call targets. When the lead scouts from 4th Squadron turned up targets, Kupko immediately directed fighter bombers to engage following a drill the regiment had worked out completely in training. Iraqis in the path of the regiment found themselves continually under devastating fire, first from aerial and ground scouts, then from the A-10s, and back again to the scouts.

Once across the line of departure the regiment moved swiftly, cutting a 40-kilometer path for the divisions behind to follow. Within two hours, the lead squadrons were 40 kilometers deep and swamped by hundreds of enemy prisoners. Resistance was light, although some of the lead troops fought fleeting engagements with Iraqi T-55s and BMPs throughout the rest of the day.

At 1700, fifteen ammunition tractors carrying the regiment's ammunition reserves got bogged down in the sand as they attempted to cross the berm. Holder called VII Corps, which turned to the 11th Aviation Brigade for an emergency aerial resupply. Immediately, two Chinooks from A Company, 5-159th Aviation, flew north loaded with tank ammunition. Forced back by a sandstorm, the two aircraft made a second attempt. The company executive officer, Captain Deborah Davis, led the determined pilots in a daring rendezvous with the cavalry by descending below 50 feet and crawling the Chinooks across the desert at 30 knots. Both aircraft spent the night laagered with the 2d ACR vehicles. The company launched another flight of four more CH-47s that afternoon, but the weather forced these aircraft to abort. At dawn, a tiny crease in the weather opened, just long enough for them to get through and then closed immediately afterwards. Despite the ammunition problem, by the end of the day the regiment had captured or eliminated the remnants of a brigade of the 26th Infantry Division.

1st Infantry Division: G-Day, Midmorning

Fortunately, when the call came to move up the attack, General Rhame had already eliminated the Iraqi border outposts. Earlier that morning he had blinded the enemy along his breach area by seizing the security zone of the Iraqi 26th and 48th Infantry Divisions. By taking the Iraqi security zone, an area south of the main enemy fortifications that contained enemy observation posts and local security patrols, he had eliminated the enemy's ability to place observed fire on the breach. At all costs, Rhame wanted to keep Iraqi artillery, particularly artillery-delivered chemicals, off his soldiers. At 0530, scouts from the 1st and 2d Brigades led their respective battalions into the security zone through 20 holes that divisional engineers had cut in the berm. 1st Brigade's TF 2-34th Armor and TF 5-16th Infantry moved forward on the left, and the 2d Brigade's TF 3-37th Armor and 2-16th Infantry advanced on the right. * * *

Each battalion task force spread across a 6-kilometer front attacking north at about 0538. By the time the battle was over at 0915, Rhame's men dominated the Iraqi infantry in the security zone. If the Iraqis refused to surrender or fired on the Americans, Bradley machine gunners pinned them in their bunkers and trenches. Under cover of suppressive fire, tanks then rolled forward to collapse remaining positions with plows. Watching their comrades die in ever-increasing numbers as the morning wore on, Iraqi soldiers in the security zone simply threw up their hands and surrendered.

Like Schwarzkopf, Rhame sensed the imminent collapse of the Iraqi forward defenses. To take advantage of the situation and ultimately save American lives, he recommended to Franks that the 1st Infantry push on to attack the main Iraqi defenses without delay. Franks approved the request after VII Corps received permission from Schwarzkopf and Yeosock to "go early." Rhame ordered his assault battalions to continue their advance at 1300, a time ultimately slipped to 1500.

Getting the attack off at 1500 meant compressing a three-hour fire support program into 30 minutes. Colonel Mike Dotson's 1st Infantry Division Artillery scrambled to recompute the firing program in time to begin the revised preparation at 1430. The commander of the Iraqi 48th Infantry Division later stated that "the earth shook" as the barrage struck his division. General Abrams had allocated the 75th, 42d, and 142d Field Artillery Brigades, 2 divisional artillery groups, and 10 MLRS batteries to create a Soviet-style "strike sector" over the breach area. These units fired 11,000 rounds of artillery and 414 MLRS rockets, dispersing more than 600,000 explosive bomblets into the 20x40-kilometer sector. More than 350 howitzers covered the attack with 22 artillery pieces for each kilometer of the attack zone. The gunners blasted enemy positions along the main line of resistance, crushing the Iraqis' morale with firepower. Other artillery struck command and control facilities to deny, the Iraqi 7th Corps commander any vestige of control and to eliminate any possibility of responding to Rhame's attack. At the same time, the enemy's tactical reserves came under sustained attack from the air. Finally, the preparation concentrated on eliminating the threat of artillery fire against the American assault troops.

An unmanned aerial vehicle had taken a last look that morning and found 13 Iraqi artillery positions that the VII Corps' artillery preparation later totally destroyed. The Iraqi 48th Infantry Division Artillery Group, 100 cannons strong on January 17, lost 17 guns during the air operation. Following the 30-minute artillery preparation, every remaining artillery piece was destroyed. The bombardment was a fitting conclusion to the carefully planned indirect fire program begun prior to G-Day. Abrams used the strengths and capabilities of cannon artillery, multiple-rocket launchers, and large tactical missiles to complement fighter-bomber aircraft, attack helicopters, and psychological warfare. * * *

In the waning minutes before 1500, soldiers in the assault battalions of the "Big Red One" composed themselves for an attack, mindful of projections that suggested 40 percent of them would be killed or wounded. Though many joked that an attack against trenches was more of the same for the "Big

Red One”-like D-Day in Normandy-they still wondered who would be left. Those in the plow tanks did not wonder at all. Rhame, too, considered casualties. As early as November, before he knew when, where, or against whom the 1st Division would attack, he focused his leaders on that very problem. Rhame articulated his intent clearly: the 1st Division would mass fires and concentrate on a very narrow front. Tongue in cheek, he told commanders the idea was to win quickly with “enough of us left to have a reunion.”

Planning focused on two problems: how to clear lanes through the obstacles and how to clear trenches quickly with minimal casualties. Tank plows and armored combat earth movers provided part of the answer. To hone its combat techniques, the division practiced supporting the ACE with fires. TF 2-34th Armor conducted the first mounted rehearsals on January 18. Rehearsing and learning continued as the intelligence picture became clearer. Eventually, the division massed 241 tanks and more than 100 Bradleys on a frontage of 6 kilometers. Simply put, battalions would attack single platoons at the points of penetration. Once a breach was achieved, units would roll out to attack adjacent platoons from the flanks and rear. Plows and blades down, tanks and ACEs would clear obstacles and flatten bunkers.

The division planned for in-depth fires to continue throughout the course of the attack. Colonel Bert Maggart’s 1st Brigade targeted sections of trench using overlays built from imagery templates and UAV overflights. The Scheme of maneuver and fires allowed targets within groups to be lifted so that friendlies could close within 200-300 meters of friendly artillery without shutting down a group of fires. Closing on the trenches with main guns firing and plows down, the division’s troops believed they would win. Before the corps’ epic bombardment ran its course, the division added its own chorus of mortar, tank cannon, and 25mm fires.

* * * * *

ARCENT: G-DAY, MIDNIGHT (***)

Movement of the Iraqi heavy reserve units was on the ARCENT intelligence “watch for” list as VII Corps passed through the breach and fanned out across the desert. General Stewart had ensured that as the American attack unfolded, intelligence collection would be constant.

No matter how good the data intelligence analysis always involves a subjective reading of objective information: the G2’s professional assessment of what the enemy will do. Good intelligence requires the G2 to put himself in the mind of the enemy, requiring leaps of ‘analytical faith based on a foundation of facts. Intelligence therefore, is not a science but an art, a large part of which involves making correct assessments from partial or flawed data,

Stewart’s analysts had inadvertently switched the identities of four Iraqi heavy units. As those units entered the KTO or moved around inside the theater prior to the air operation, signals intelligence analysts picked up bits and pieces of unit call signs, movement orders, and other tip-offs that said, for example, that the 12th Armored Division was moving to a new but unspecified location. If imagery showed an armor unit moving or adjusting its positions at that time the unit was labeled the “possible” 12th Armored. As more “hits” developed on the unit’s identity, the “possible” identification hardened to a “probable,” and might even be confirmed by another source. The units in question were the 12th and 52d Armored Divisions in one pair and the 10th and 17th Armored Divisions in the other. Thus when General Franks slapped the map and said, “I want that unit to go away,” his hand rested on the symbol of the 12th Armored rather than the 52d actually, at that location.

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Of the four misidentified units, the 12th and 52d Armored Divisions were most important to ARCENT because they were closest to VII Corps' breach. Late on February 24, intercept picked up orders to the 12th Armored Division's 50th and 37th Armored Brigades to move to unspecified blocking positions. Simultaneously, JSTARS detected 10 vehicles moving north along the pipeline road west of the Wadi al-Batin. It also detected a battalion-size convoy moving from the Iaager of what Stewart believed was the 52d Armored. Stewart tracked the activity closely to determine whether the Iraqis would attempt an operational counterattack or simply move to block the US VII Corps' left-hook attack from the west. He owed that 'key read' to Franks by midday on the 25th. Movement indicators in the two Iraqi divisional areas continued, reinforced by JSTARS-detected movement out of the Tawakalna Iaager toward Phase Line Smash.

Early on February 25, Stewart spoke to Franks about the situation, indicating that the Iraqis were not counterattacking. The 52d Armored, in conjunction with the Tawakalna, was moving less than a brigade out along Phase Line Smash. JSTARS had focused on these movements, calculating the precise number of tanks and armored vehicles, their direction, speed, and location along the phase line. The 12th Armored Division, Stewart believed, was occupying similar blocking positions west of Wadi al-Batin. None of these units therefore, was a threat to VII Corps' attack.

Stewart projected that the Iraqis would continue to delay along the IPSA pipeline to defend Basrah. He estimated that the remaining Republican Guard divisions-especially the Medina and the Hammurabi--would reposition to defend Basrah as well. * * * Based on that assessment, Franks decided to destroy the Iraqis on Phase Line Smash. The 2d Armored Cavalry Regiment would arrive at Phase Line Smash first

2d Armored Cavalry Regiment: G-Day Plus 1

After a relatively calm night holding in defensive positions, the regiment resumed the attack on the 25th and intensified the search for evidence of the Republican Guard. During the previous evening the weather had worsened as winds picked up bringing in cloudy skies and rain. The winds increased as the day wore on and the ceiling dropped along with visibility due to blowing rain and sand. Continuing with the 4th Squadron leading, the regiment's progress toward the northeast eventually moved out of the way of Major General Griffith's 1st Armored Division allowing him to continue his attack to the north toward al-Busayyah and Objective Purple.

Between 1220 and 1240 the regiment engaged a mixture of T-55s and armored personnel carriers in prepared defensive positions. These proved to be part of the 50th Armored Brigade of the 12th Armored Division. Holder had yet to encounter the T-72s of the Tawakalna, but he knew he was close. Ordered by corps to develop the situation, the 2d and 3d Squadrons continued their forward progress throughout the afternoon and joined the 4th Squadron, already teamed up with A-10s, in the destruction of the 50th Armored Brigade. Late in the afternoon, Franks directed the regiment to keep contact with the enemy without becoming decisively engaged. He was already planning to move the 1st Infantry through the 2d ACR, and he wanted to pinpoint Republican Guard locations to find the best place to insert Rhame's division. That evening two of the regiment's M113 armored personnel carriers got lost in a sandstorm during an Iraqi probing action and were mistakenly taken under fire by friendly troops. Four soldiers were killed and four wounded.

By the end of the day on the 25th, the regiment shifted steadily east to give the 1st Armored's divisional cavalry, squadron and the 1st and 3d Armored Divisions enough room to move north toward Phase Line Smash. There Franks would have to decide whether to continue marching northeast or turn hard right in order to collide squarely with the Republican Guard. Meanwhile, the British 1st Armoured

Division still had to pin down the Iraqi 7th Corps armored reserves after passing through the 1st Infantry Division. The determined advance of the VII Corps continued.

1st Armored Division: G-Day, 1500, to Midday, G Plus 2

Under scattered clouds, Griffith moved the 1st Armored Division across the desert in a modified division wedge, with the 1st Brigade forward and the 2d and 3d Brigades to the left and right rear. Having chosen the wedge for flexibility, Griffith spread the entire formation over a 26-kilometer front. Intelligence had pinpointed enemy units of battalion strength in his sector, and Griffith planned to outflank and destroy them with his lead brigade. Out front, the brigade had room to maneuver. If the enemy put up determined resistance, Griffith could counter by ordering either the left or the right rear brigade forward. In all, the formation was very agile (see Enclosure D to this Appendix).

As darkness fell the first day and increasing winds created dust storms, vehicle commanders used thermal sights to scan the area around them and drivers used night vision devices to maintain formation. To avoid fratricide and maintain position, each vehicle carried identification lights. Flank vehicles and scouts carried additional lights to mark the outline of each formation. Special infrared lights on scout vehicle antennas created a unique thermal signature. Lead vehicles carried blinking strobe lights fitted with conical shields pointed skyward so that the lights were invisible from the ground but could be seen by friendly aircraft. By 2130, all elements of the 1st Armored Division had reached their proper positions in the division wedge. The division halted for the night, and the troops saw to their equipment as leaders paused to review the next day's plans.

Shortly after the 1st Armored Division resumed its advance on the 25th, the lead brigade reached the southern positions of the Iraqi 806th Infantry Brigade, 26th Infantry Division, located some 50 kilometers south of Griffith's next objective at al-Busayyah. As the day progressed, the weather continued to worsen, eventually shutting down all close air support except Apache and Cobra helicopters. Griffith shifted the lead brigade west to bypass the Iraqi position in order to maintain momentum. He ordered the trailing 3d Brigade to attack the enemy position and catch up to the advance as soon as possible.

Months of unit rehearsals paid off as Colonel Dan Zanini's 3d Brigade conducted a hasty attack. Each task force, company team, platoon, and individual vehicle shifted into place according to long-practiced battle drills. After a short bombardment by the 3-1st Field Artillery, the brigade rolled menacingly into attack formation. As soon as the Iraqis saw the Americans approaching into direct fire range, they began to surrender. * * *

The rest of the division had continued its attack toward Objective Purple at al-Busayyah. Led by the 1-1st Cavalry, the 1st Brigade made contact with additional elements of the Iraqi 26th Infantry Division. After the 2-41st Field Artillery prepped the area, TF 1-7th Infantry overran a battalion of dug-in Iraqi infantry supported by a mechanized team. The Americans knocked out eight BMPs and a T-55 tank. PSYOP loudspeaker teams convinced nearly 300 Iraqis to surrender, and at 1448 the battalion reported the area secure.

While ground units engaged in close combat, Griffith struck deep with his 4th Brigade's Apache helicopters toward the Iraqi 26th Infantry's logistics base at al-Busayyah. Shortly after 1400, two companies of Apaches launched a series of strikes that destroyed several tanks and BMPs. As a result, hundreds of enemy soldiers ran from their positions to surrender. 1st Armored Division scout helicopters simply herded them into groups as ground units from the 1st Brigade closed to within 10 kilometers of al-Busayyah and rounded up the demoralized Iraqis. * * *

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The continued advance of 1st Armored Division's 1st and 2d Brigades brought them to within artillery range of al-Busayyah. In the late afternoon lead units encountered some enemy resistance from dug-in infantry, but the T-55 tanks that intelligence had reported near the town remained hidden. Griffith had two options: conduct a hasty night attack into a built-up area against infantry supported by tanks or wait until morning to conduct a coordinated attack. Griffith called Franks and recommended the latter. Franks agreed but told Griffith to be well beyond al-Busayyah by 0900 the next morning. Frank's design for the upcoming battle allowed no further delay. Throughout the night, Griffith pounded Iraqi defenders with 1,500 artillery rounds and 350 MLRS rockets.

At dawn on the 26th, Griffith prepared to attack al-Busayyah. Weather conditions remained dismal with wind gusts to 42 knots, ceilings as low as 200 feet, and thunderstorms intermixed with blowing sand. The Iraqi conscripts' morale was already dismally low as they huddled miserably in bunkers around the town. Griffith's artillery soon shattered al-Busayyah completely by accelerating to a maximum rate of fire 15 minutes before the ground assault began. American gunners sweated chemical suits black as they dispatched thousands of bomblet projectiles toward enemy positions. The continuous crackle of exploding submunitions began to subside at 0630 as the division's 1st and 2d Brigades pushed forward, Bradleys and Abrams on-line, to move through the Iraqi defenses.

Before the psychological shock of the artillery wore off, the 2d Brigade attacked toward the center of al-Busayyah with TF 6-6th Infantry and TF 2-70th Armor, while the 1st Brigade lanced through positions south of the town. Most of the Iraqis gave up quickly. The five missing Iraqi T-55 tanks suddenly emerged from wadis southwest of the town. Abrams and Bradley gunners immediately destroyed them at very close range. Only the 26th Infantry's commando battalion displayed any fighting spirit by refusing to leave the center of town. Griffith had issued strict instructions not to get bogged down in house-to-house fighting, and the Americans passed through quickly.

The fight around al-Busayyah was little more than a skirmish, but it was first blood for the division. The experience gave soldiers two crucial advantages. First, the fight confirmed, if only on a small scale, the superiority of Griffith's tactic of simultaneous attack in depth. To his front Griffith created a carpet of combat power that stretched 24 hours and nearly, 100 kilometers ahead of his lead maneuver elements. At the greatest distance, Apache aircraft struck with company-size attacks as far as 50 to 60 kilometers forward of the advancing tanks. At 30 kilometers, MLRSs began to inundate targets uncovered but as yet undestroyed by air attack. Once within direct observation of scout helicopters and forward observers, cannon artillery joined in the crescendo of firepower. Only after these four successive waves had washed over the Iraqi defenses did Griffith carefully maneuver to achieve overwhelming tactical superiority and finish the fight with direct fire.

The second advantage of the al-Busayyah fight was that it gave the division its first combat experience since World War II. While the Iraqis at al-Busayyah were inferior to the Republican Guard, the commando battalion had been trained by the Guard and was considered its surrogate. The confidence level of the entire division rose immeasurably. Much uncertainty remained, but the 1st Armored Division had come through the shock and confusion of its preseason game a clear winner.

In addition to the enemy, Griffith faced another foe--one that he could not bend to his will--time. He had promised Franks to be rolling by 0900. While the outcome of the fight at al-Busayyah was never in question, he would not be able to meet his time line if he waited for the town to be cleared. Instead he turned the task of mopping up to Lieutenant Colonel Michael McGee, commander of TF 66th Infantry, and pushed the rest of the division on toward the Republican Guard.

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At 1230 on the 26th, the 72 cannons and nine MLRSs of the 75th Field Artillery Brigade caught up with the 1st Armored Division after an all-night forced march from the 1st Infantry Division breach site. During the afternoon, Griffith ordered his entire division to turn 00 degrees from northward to an eastward orientation so that the entire formation was aligned directly toward the Republican Guard located just 50 kilometers away. Changing the direction of some 6,000 vehicles on the move was made easier by constant battle drills and by the flat, featureless nature of the terrain. Within a few minutes of the order, Griffith, flying above in his command and control Blackhawk, witnessed a sight reminiscent more of a naval than an army maneuver. While one brigade cluster of a thousand vehicles held steady, the geometrically precise dust clouds of two other brigades quickened and split gradually to the right and left, as the brigades formed up on either side of each other. A 2-kilometer space between lines of tanks defined the boundary between each battalion; a kilometer or less divided companies. Once aligned, the armored tip of the three brigades again accelerated eastward. Parallel files of Abrams tanks led the formation, appearing from the air like small, single-turret battleships positioned to put maximum firepower and protection forward. The Bradleys followed behind arrayed like cruisers, spaced 50 to 100 meters apart and conforming to the movement of their more heavily armored companions. Battery-size columns of artillery followed 2 kilometers behind the armored tip. Closely behind the artillery, in hundreds of parallel columns, came a huge assortment of support vehicles: tankers and supply HEMTTs, tracked ambulances, and command posts with smaller armed HMMWVs darting in and out of the formation like destroyers keeping watch over their thin-skinned and less mobile charges.

British 1st Armoured Division: G-Day Plus 1 to G-Day Plus 2

Major General Rupert Smith was hunting for the Iraqi 52d Armored Division to prevent it from striking the exposed VII Corps flank. His overall target was a group of smaller positions, collectively called Objective Waterloo. To get at the 52d, the British 1st Armoured Division had to pass through the "Big Red One," make a sharp turn to the east, and force its way through the crumbling forward defenses of the Iraqi 7th Corps. Smith understood the need for speed. He planned to leapfrog his brigades forward to maintain momentum while his artillery struck deep against the Iraqi rear. When he received notice to move up the assault time, he marched his two combat brigades 100 kilometers to staging areas during the early morning of the 25th. All afternoon the British division negotiated lanes through Iraqi barriers just cleared by the 1st Infantry, as they made their way to the line of departure, Phase Line New Jersey. By 1515, the lead 7th Brigade was attacking east along the divisional northern axis. After a long approach march, the brigade assaulted Objective Copper North, destroying a major communications facility and defeating a counterattack by a company of T-55s. The 4th Brigade began advancing on the southern axis at 1930. Traffic control problems imposed a momentary delay, but by the time the 7th Brigade secured Copper North, 4th Brigade was nearing Objective Bronze. As the attack on Bronze began at 2230, the 4th Brigade eliminated pockets of armor and infantry and overran several huge logistics sites. Asked to send loudspeakers forward to help convince the Iraqis to surrender, Smith wryly offered more MLRS fire instead. Smith pushed the 7th Brigade forward to Objective Zinc where the "Desert Rats" destroyed a weakened Iraqi armor-cd brigade, killing 46 armored vehicles and capturing 1,800 prisoners. By daylight, Smith had his hands around the throat of the Iraqi 52d Armored Division. The hapless commander of the Iraqi division's 52d Brigade later remarked that he "did not know what a [British] Challenger tank looked like until one showed up outside my bunker that morning." Every kilometer the British pushed eastward lessened the chance that the Iraqis could interfere with Franks' battle plan by striking VII Corps in the flank.

As dawn broke on the 26th, 7th Armoured Brigade secured its initial objective on the division's left and continued the attack against the next group of enemy armored forces farther east. On its right, the 4th Armoured Brigade continued to destroy enemy units in flanking attacks. By late afternoon on the

26th, Smith's division was ready to launch a series of attacks that would carry it across the Wadi al-Batin into Kuwait. * * *

VII CORPS: G-DAY PLUS 1, EARLY AFTERNOON (***)

1st Armored Division's order to saving cast came as part of VII Corps' grand maneuver to turn directly into and destroy the Republican Guard. On the afternoon of the 25th, Franks called together his key staff members to make final preparations for the maneuver. Brigadier General John Landry, the corps chief of staff, and Colonel John Davidson, the corps intelligence officer, flew up to Franks' tactical command post from the corps main headquarters. The weather, already miserable, was growing worst. What had been one of the hottest spots on earth only weeks earlier was now near freezing. Earlier fog had turned into intermittent rain that by afternoon had increased in intensity. Howling gusts of wind mixed fine powdered sand with blowing rain and propelled the infernal muddy concoction against windshields, vision blocks, and map boards, and into every exposed corner of every vehicle on the march. * * * Visibility dropped to near zero. Thick, stinging blasts of wet sand lashed vehicle commanders straining to check compasses or global positioning systems as they struggled to maintain formation. Low clouds prevented close air support in many areas of the battlefield and high winds often grounded helicopters. Franks realized that the corps would practically have to feel its way toward the Republican Guard.

At the center of the VII Corps line, Franks' M-113A33 command track and his two M-577 command post tracks had pulled in beside the M-577 of the 3d Armored Division CP so he could maintain contact with his corps while his own TOC crew hurriedly set up. Franks and Colonel Cherrie, his operations officer, huddled with Landry, and Davidson under the tarpaulin extension at the rear of the 577. The tarp could not keep out the blowing rain. Gritty brown water ran down the corps commander's map board as the shivering group of officers shouted at each other over the howling wind. Outside, a communications crew struggled to steady the multichannel TACSAT antenna to enable Franks' tactical command post to maintain contact with ARDENT headquarters. Both Franks and Davidson had talked with Stewart at ARCENT G2 earlier that morning. Stewart told them that he believed the Republican Guard might reorient its forces but did not appear to be maneuvering against VII Corps. When Colonel Davidson reached Franks' command post in the early afternoon he confirmed Stewart's assessment.

The time had arrived for Franks to call his audible if he was to bring the Republican Guard to battle in the next 24 to 48 hours. Turning the corps would take that long. Franks and Cherrie laid out time and space calculations on the back of a soggy envelope. Together they drew the graphics to depict the audible using a grease pencil on a dripping acetate map overlay. Franks had to make his call and then get the order out to 145,000 soldiers, most of whom were advancing deep into Iraq with every passing second. After further deliberation, he selected FRAGPLAN 7, a contingency plan audible developed on the assumption that the Guard would remain in or near positions occupied at the start of the ground war. The plan was not a perfect fit, however. It called for three heavy divisions to make the main assault, but Franks had only two: the 1st and 3d Armored then moving side by side through the desert. The audible postulated the 1st Cavalry Division as the third finger in the armored fist but Schwarzkopf had not yet released Tille's unit from the theater reserves mission. Fortunately Rhame's "Big Red One" had made it through the branch relatively unscathed and was in a position to serve as the essential third division.

The decision made to turn right, Cherrie had to inform the corps. The order would be the most important and decisive of Desert Storm. In a much practiced drill, the staff quickly typed a FRAGO, or shortened version of an operations order, on a laptop computer. Cherrie's operations clerk "loaded" the order into the E-Mail system as Cherrie and Franks hovered over him to review it one last time. While

the corps was no longer in Germany, the German influence remained in the corps. Cherrie, in his best Teutonic accent, ordered "Launch FRAGO!" The clerk hit the "launch key" and sounded off with "FRAGO launched!" Another staff officer then logged the order number and time in his staff journal and filed a paper copy in a binder. The VII Corps' "electronic torpedo" had just sunk the Republican Guard.

The scene illuminated Franks' personal style of command. At least once, and often twice a day, he flew, directly to the divisions or separate brigades to confer with his commanders face-to-face. A quick huddle over maps spread out over the engine deck of a HMMWV or around a map board propped up by the side of an armored vehicle provided Franks the opportunity to explain his plans in detail. These trips forward allowed Franks to "smell" the battlefield and to measure his commanders: their level of confidence, their understanding of his plans, and any concerns they might have about his operational intent.

With FRAGO 7 on its way, the 1st Armored Division continued to advance north on the 14 wing while the 2d ACR shifted south to take up station to the right of the 3d Armored Division. The cavalry would cover the ground between the 3d Armored Division and the British. Franks expected the cavalry regiment only to locate and fix the Republican Guard. Once that happened, the 1st Infantry Division would pass forward through the cavalry and form up with the 1st and 3d Armored Divisions.

VII Corps would meet the Republican Guard with the three heavy divisions on-line turning clockwise shoulder-to-shoulder to form the giant radial arm of the Great Wheel. Four heavy artillery brigades and the corps aviation brigade would support the fourth heavy division, the British 1st Armoured, would turn more slowly, at the hub of the wheel to anchor the corps' right flank by taking Objective Varsity. Traveling up the spoke away from the British 1st Armoured Division, the 1st Infantry Division would blast through Objective Norfolk and then continue east. The 3d Armored Division would attack through Objective Dorset and on toward Objective Minden. At the northern tip of the radial, the 1st Armored Division would attack and secure Objective Bonn. All of these objectives were stacked one atop the other and superimposed directly over the main fighting positions of the Republican Guard.

Franks and Cherrie calculated that the battle might begin late on the 26th, certainly by the 27th, a date still well ahead of schedule. As the evening of the 25th wore on, the calculus of battle continued to turn in VII Corps' favor. The British 1st Armoured Division's move east had allayed concerns that an Iraqi counterstroke might disrupt vulnerable supply columns or interfere with the jockeying of the heavy divisions into position for the upcoming battle. The corps had nearly completed reassigning artillery brigades to the armored divisions. Griffith would receive the 75th Field Artillery Brigade's three cannon battalions and MLRS battery. The 42d Field Artillery Brigade's one MLRS and two cannon battalions would join the 3d Armored Division in the center. The 2d ACR would pass off the 210th Field Artillery Brigade's three cannon battalions and single MLRS battery to the 1st Infantry Division.

CENTCOM: C-DAY PLUS 2, MORNING

The call from Yeosock on the morning of the 26th was a routine battle update, but he also suggested that Franks call General Schwarzkopf. * * * From his tactical command post deep inside Iraq, Franks reached Schwarzkopf at his permanent headquarters 800 kilometers south in Riyadh. Schwarzkopf wanted VII Corps to pick up the tempo of advance. Radio intercepts indicated that the withdrawal ordered by Iraqi 3d Corps in southern Kuwait had turned into a rout. Further, heavy tank transporters had been spotted moving to the assembly area of the Hammurabi Armored Division, a clear indication that Saddam might be trying to pull the Hammurabi back out of Schwarzkopf's reach. At all costs, the back door had to be shut before Saddam's best soldiers escaped. Weather remained a problem and the CINC could not count on air power to put the cork in the KTO bottle. From his distant position,

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Schwarzkopf had already formed an image of the ground operation as a pursuit rather than a movement to contact. In his view, the only viable course of action to prevent the Republican Guard from getting away was to increase the tempo of the ground attack and to destroy the enemy before he fled.

VII CORPS: G-DAY PLUS 2

From his forward location, Franks viewed the battle differently. Even though the Iraqi 3d Corps might be on the run, intelligence did not indicate any rearward movement on the part of the Republican Guard or the associated 10th and 12th Armored Divisions of the Jihad Corps. On the contrary, all movements thus far had been toward, not away from him. The Iraqi GHQ had built one solid defensive line and appeared to be assembling a second just behind it. While VII Corps senior leaders accepted the reports of feeble enemy resistance encountered by the Marines and Arabs in Kuwait, those particular Iraqi troops belonged to a different army than the Republican Guard. Should Franks simply accelerate the advance without first forming his armored fist, his divisions would bounce into the Guard sequentially and piecemeal, an open invitation to defeat in detail. In any case, only the 1st and 3d Armored Divisions, both still without their reinforcing artillery brigades, were available to attack at this stage of the battle. The Iraqis had five heavy divisions collected in a tight cluster in the vicinity of northeast Kuwait: the Republican Guard's Tawakalna Mechanized, the Medina and Hammurabi Armored Divisions, and the regular army's 10th and 12th Armored Divisions.

Pursuit of an enemy requires that he first be broken, Schwarzkopf's call to pursue clashed with the tactical reality of a stationary, dug-in, forewarned, and competent enemy. In the end, Franks simply accepted the contrast in views as the result of different perspectives. Early on the 26th, he ordered his corps to attack and destroy the Republican Guard no later than last light on the 27th. This simple message dictated the desired tempo of attack: VII Corps would press the attack without pause. Major subordinate commands received the message by 1045.

If Franks upped the tempo of the advance, he in no way changed his vision of the upcoming battle. He would smash the Republican Guard with a mailed fist before the corps shifted to the pursuit. Through the early afternoon of the 26th, Franks traveled to subordinate headquarters to receive battle updates and to issue orders to ensure that the armored formation retained its mass.

Miserable weather compounded VII Corps' communications difficulties. All corps Units constantly monitored the command net on FM, but given the distance between units and the unreliable atmospherics of the region, satellite was the most reliable communication method when on the move. Unlike XVIII Airborne Corps, however, VII Corps had very few TACSAT sets on hand and these could not be used in a moving vehicle. Franks' daily trips forward partially eased the problem. When communications were out, Franks and his commanders relied on their mutual understanding of his intent.

By 1600 on the 26th, Franks' battle against the Republican Guard began to take on precisely the geometry he had envisioned. Along an 80-kilometer front, VII Corps pressed forward in the blowing sand with seven armored and mechanized brigades and an armored cavalry regiment aligned geometrically from north to south. An additional mechanized division, four heavy artillery brigades, and an attack helicopter brigade reinforced the formation. That afternoon the formation crossed Phase Line Tangerine, an imaginary control line superimposed on tactical maps along the 65 north-south grid line. The attacking brigades closed on the four heavy Iraqi brigades defending from northwest to southeast just 5 kilometers east of Tangerine. United in space, time, and purpose, the largest armored battle since the Second World War was about to begin.

With his corps approaching the first Iraqi defensive line, Franks prepared for the subsequent pursuit phase of the operation that the CINC had pressed for so emphatically. He ordered the 1st Cavalry Division, which Schwarzkopf had just released from theater reserve, to move rapidly into formation just behind the 1st Armored Division. In just 24 hours, Tilelli's "First Team" raced 250 kilometers northward in an attempt to join the fight. Franks intended to insert the division into a sweep across the northern boundary, of VII Corps and attack east to Objective Raleigh. Likewise in the south, he planned to hook the 1st Infantry Division around the southern shoulder of the attacking mass to complete the envelopment by striking northeast to the coast. The British 1st Armoured Division would guard the 1st Infantry's right flank. XVIII Airborne Corps would seal the escape routes north to Basrah and across the Euphrates in front of VII Corps' enveloping armor.

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THE BATTLE OF WADI AL-BATIN
VII CORPS, C-DAY PLUS 2
 (See Enclosure E and F to this appendix)

2d Armored Cavalry Regiment: G-Day Plus 2,1525

On midafternoon, February 26, Franks began the long awaited battle against Saddam's Republican Guard as VII Corps crossed Phase Line Tangerine on the 65 Easting, the longitude selected as the final coordination line before the corps reached the Guard. At 1525, the 2d ACR advanced past Tangerine with its three ground squadrons abreast: the 2d Squadron in the north, the 3d in the center, and the 1st in the south. Thirty minutes later at the 70 Easting, the 2d Squadron ran into the forward security outpost of the Tawakalna Division's 18th Mechanized Brigade. A task force of more than 30 T-72 main battle tanks and a dozen BMP infantry fighting vehicles occupied revetted firing positions, while supporting infantry manned interconnecting dugouts and trenches. The thick blowing sand and swirling mist cut visibility to less than 1,000 meters, but with thermal sights the Abrams and Bradleys still had an advantage **in any** weather. The cavalry advanced to the killing ground unannounced.

As the 2d Squadron pressed forward, indistinct blobs in thermal viewers grew steadily in size and clarity. Excited gunners first used low power on their gun sights to count targets, then switched to high power to pick out those with turrets rotated in their direction. A mile and a half from the Iraqis, tank commanders' fire commands broke the soft rushing noise of whirle intercoms. Gunners answered immediately with "On the way" and pressed the firing buttons on their "cadillac" handgrips.

The boom of tank guns and the sharp "crack-crack-crack" of Bradley 25mm chain guns echoed through the fog, rolling over many Iraqi crews 10 seconds after they died. Inside American tanks, the blast of the main guns outside merely blended with the cacophony of battle. All along the firing line, the sequence in each tank was identical: a rapid-fire command to engage; the mass of the main gun slamming rearward with each shot; the blast-proof door banging open as the loader smoothly flipped another silver bullet into the breech.

Survivors in the Iraqi security force stubbornly returned fire, aiming at the muzzle flashes of the American guns. Unable to see clearly, Iraqi gunners collectively made two technical mistakes that doomed them. First, they had all zeroed their 125mm main guns at the standard Soviet battle sight range of 1,800 meters. The cavalry opened the duel at 2,400 meters, so nearly every Iraqi shot landed short. Second, they assumed that the distant muzzle flashes came from stationary tanks. Since Americans fired on the move, the Iraqi shots that came close merely skipped over the spot where the Abrams had been only seconds before. Under the American guns, the remaining combat vehicles in the Iraqi security force

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died quickly. The defending Iraqi commander later remarked that after losing 2 of his 39 T-72s in five weeks of air attack, the 2d Cavalry had annihilated his entire command in fewer than six minutes in what later became known as the Battle of 73 Easting.

As flaming T-72s began to form the outline of the Iraqi firing line, the squadron's fire support teams called for artillery. More than 2,000 howitzer rounds and 12 MLRS rockets spewed 130,000 bomblets on the frontline Iraqis and targets beyond the range of direct fire weapons. When a company of T-72s threatened to overrun 3d Platoon of G Troop, howitzers fired an immediate suppression mission that stopped the Iraqis cold. Regimental gunners fired 128 DPICM rounds and 12 MLRS rockets shortly thereafter against an unseen Iraqi armored unit previously located from aerial photographs. Faint white flashes followed by dense columns of smoke stretched out horizontally by the wind proved the intelligence target to have been a good one. Later inspection verified that the strike had knocked out a company of armored vehicles, 27 ammunition bunkers, and 40 trucks. The 73 Easting fight was nearly over.

As darkness fell, the fighting in the northern zone of the regimental sector slackened, while in the southern portion of the zone the 1st and 3d Squadrons had little contact. Unfortunately, 'another fratricide incident occurred in 3d Squadron as a Bradley mistakenly fired at another Bradley in a neighboring troop, wounding six soldiers. Once its leaders had sorted out the friendly fire incident, the cavalry regiment halted, its job of finding the enemy completed. At the VII Corps tactical command post, reports from this engagement and others 'arrived almost simultaneously from across all 80 kilometers of the corps front.

VII CORPS: G-DAY PLUS 2, LATE AFTERNOON

A single glance at the corps' tactical situation map revealed that Franks' attack had achieved almost geometric precision. Because the corps approached aligned roughly north to south and the Republican Guard defenses were oriented northwest to southeast, the collision occurred at an oblique angle. As the flank divisions lapped around the dense mass of the Republican Guard, the trace of the corps front eventually formed into the horns of a bull. In the north, 1st Armored Division hooked deep around the northernmost Iraqi brigade. In the center, the 3d Armored Division pinned the Tawakalna's 9th Armored Brigade, and in the south the 1st Infantry Division prepared to pass through the 2d ACR, first to penetrate and then to envelop the southern wing of the enemy. On the corps' right flank, the British 1st Armoured Division crushed remnants of the 52d Armored Division to advance well past the left flank of the Republican Guard. The close battle now began in earnest.

* * * * *

3d Armored Division: C-Day Plus 2, Midmorning

General Funk's 3d Armored Division formed the center of VII Corps, tightly wedged between Griffith's 1st Armored on his left shoulder and Rhame's "Big Red One" moving up steadily on his right. He had only 27 kilometers of battle front. With such limited room, Funk could only allow two brigades forward on-line and still maintain some minimal capability to maneuver. The dense formation, however, would not permit the leap-frog and bypass technique that Griffith was able to execute in the north. Instead, Funk was obliged to defeat his piece of the Republican Guard with concentrated firepower. Funk divided his supporting artillery into two roughly equal groups which he tucked up very close behind the lead task force of each lead brigade. Two distinct concentrations of artillery-as many as 50 guns and rockets apiece-were kept close so that when a major obstacle appeared, they could be immediately ordered into action to deliver an overwhelming mass of firepower. Funk's artillery practiced

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what could only be called a "mass hip-shoot." Given the signal, battalions of rockets and guns would halt in place and orient themselves, using GPS or the inertial locating device aboard each MLRS. Then, under the control of the brigade fire support officer, guns of all calibers would open fire in unison. The 3d Armored Division artillery and its supporting 42d Artillery Brigade could execute a hip-shoot in fewer than eight minutes. * * *

Funk pushed the artillery as far forward as possible to take advantage of every available meter of range. He kept two MLRS batteries under his direct control to work over fresh targets provided by his forward scouts, Air Force and Army pilots, or preplanned target lists derived from intelligence. Ironically, in one instance his MLRS was so close that he had to send two batteries 7 kilometers back to the rear to get the targets beyond the minimum range of the system. On Tuesday morning, February 26, Funk had driven his two-brigade pahalans within range of the Tawakalna. He initiated his drumbeat of firepower with an hour's worth of pinpoint shooting by two Air Force AC-130 Spectre gunships. As close air support A-10s and F-16s appeared over his formation, Funk established informal airspace coordination areas (ACAs) along specific grid lines to separate his artillery front from his tactical air. The ACAs gave friendly aircraft a block of airspace free of friendly, surface fires, especially artillery, and allowed Funk to continue attacking targets outside the ACAs. As aircraft reported on station to the division air liaison officer, he passed them to his forward brigades to allow them to work the air support as close as 5 kilometers to friendly troops. Concern for fratricide dictated that no close strikes would be flown unless the aircraft were under positive control from observers on the ground. Funk used as much air support as weather and safety allowed. He wanted to delay calling for an artillery hip-shoot for as long as possible so that the momentum of his two brigades would not be interrupted until the last conceivable moment.

Funk's two lead brigades attacked the Tawakalna's 29th Mechanized and 9th Armored Brigades on an oblique angle at 1632. As with the 1st Armored Division, he achieved total tactical surprise, appearing some five hours earlier than the Tawakalna commander expected. In the north, 3d Armored's 2d Brigade hit the southern end of the 29th Mechanized and main positions of the 9th Armored while the 1st Brigade broke into the enemy security zone in the south. Once the 2d Brigade penetrated, Funk planned to pass the 3d Brigade through to exploit the success.

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1st Infantry Division: G-Day Plus 2, 1800

To the south of 3d Armored Division, Rhame's "Big Red One" prepared to pass through the 2d ACR and pick up the battle late on the 26th. In blowing sand and rain, the division took the hand-off after a 16-hour march from the breach and lined up on the move to go into battle against a Republican Guard heavy brigade. Rhame moved his two forward brigades through the cavalry in a very delicate and risky passage-of-lines operation that came off better than many leaders had dared hope. As he formed his division to attack, Rhame took control of the 210th Field Artillery Brigade from the 2d ACR and was firmly in control of the battle by 2200. His entrance into the fight boosted the VII Corps battle line to nine heavy maneuver brigades, all attacking simultaneously across the 80-kilometer front. * * *

The Tawakalna Division commander had organized his defensive line with his tank battalions concentrated on his left and right wings with infantry entrenched between. The 1st Infantry attacked on a west-to-east axis south of the 2d ACR. As Rhame's two lead brigades, the 1st and the 3d, advanced through the enemy obstacle belt, they hit the defenders of the southern portion of the 18th Mechanized Brigade and, farther east, the 12th Armored Division's 37th Armored Brigade. The fight lasted until daybreak.

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British 1st Armoured Division: C-Day Plus 2 to G-Day Plus 3

To Rhame's south, General Smith's British 1st Armoured Division had also pressed the attack throughout the night of the 26th. That morning, 4th Brigade attacked and seized Objective Brass. Despite the blowing sand and dust, heavy Challenger tanks and Warrior infantry, fighting vehicles quickly destroyed most of two armor and mechanized infantry battalions.

By 1330, the brigade held the objective in strength as 7th Brigade in the north launched its attack to seize Objective Platinum. In a carefully orchestrated series of one-two punches, Smith shifted his artillery, back and forth in support of the alternating attacks of his brigades. By nightfall, advance British elements approached the Wadi al-Batin in the north while 4th Brigade launched yet another attack in the south to seize Objective Tungsten by 0430. Both units then regrouped, with 4th Brigade preparing for a full-scale morning assault across the IPSA pipeline and beyond the Wadi al-Batin.

* * * * *

11th Aviation Brigade

From the beginning, Franks had planned to fight a synchronized battle, striking the Iraqis close and deep simultaneously. One of his means for attacking deep was Colonel Johnnie Hitt's 11th Aviation Brigade, which Franks intended to launch against Iraqi armored reserves. The Air Force assumed some of the deep-strike mission, but Hitt's Apaches were more effective at precision strikes against masses of moving armor, especially at night. Franks kept his G2 looking up to 150 kilometers in front of his forwardmost units for any armored movement large enough to threaten his corps. On the afternoon of February 26 when no such movement had occurred, he decided to strike deep at the stationary Iraqi 10th Armored Division.

VII Corps' deep battle cell had developed a number of event-triggered contingency plans and had placed a series of kill boxes over areas the Iraqis would likely use to launch counterattacks. These plans were thoroughly coordinated with the staff and corps units for execution on short notice. One such plan, CONPLAN Boot, called for a deep attack to be launched from Saudi Arabia, across the breach, and into a kill box 100 kilometers inside Iraq.

Franks told Hitt to prepare for an attack that night to preempt any movement of the 10th Armored Division still in its static position near Objective Minden well inside Kuwait. Hitt issued the warning order at Forward Assembly Area Skip at 1530, then flew to the corps main command post to coordinate the plan. In order to strike so soon, Hitt was forced to change CONPLAN Boot considerably. Time was too short to plan for a detailed passage of lines as the brigade had done in the pre-G-Day feint on February 17.

Uncomfortable with some of the details, Lieutenant Colonel Roger McCauley, commander, 4-229th Attack, and Lieutenant Colonel Terry Johnson, deputy brigade commander, flew to the VII Corps Tactical Command Post to confer with Franks and his G3, Colonel Cherrie. Franks told Johnson not to launch until he and McCauley had coordinated with every division and 2d ACR. The general was particularly concerned that last-minute changes might result in fratricide when the attack passed over friendly ground units. Cherrie also told the pilots to stay in the kill boxes and not to fire east of the 20 north-south grid line. The Air Force would attack on the east side of that line.

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The attack was planned to begin at 2100, but Hitt could not get through on the TACSAT to transmit the final go-ahead order until 2030. At 2100 Major Sam Hubbard, the battalion S3, took off in an Apache with A Company, and Johnson followed in the brigade command and control UH-60. A Company's six Apaches were at the point of McCauley's battalion wedge with the mission of clearing the route for B and C Companies. As Hubbard approached the friendly front line, he observed a tank battle just south of Objective Norfolk. The Apaches diverted slightly to the south. Johnson's aircraft arrived at the same point seconds later.

McCauley's battalion of 18 Apaches attacked with three companies on-line. A Company had the northern box, which included a slice of Objective Minden. B and C Companies had the center and south, respectively. After Captain Greg Vallet's A Company crossed the release point, they turned east and crossed into Kuwait. Vallet spread his Apaches about 150 meters apart and began a slow eastward movement into the box at about 30 knots. Almost immediately the Apaches received small-arms fire as they swept through, firing missiles, cannon, and rockets at anything that appeared hot in the FLIR. Friendly units were not a factor since the nearest were 50 to 80 kilometers behind them. Captain Ben Williams' B Company entered his kill box shortly after Vallet. About halfway through the box, Williams' company picked up T-62s and a mix of MTLBs and BMPs and wiped out everything in their path all the way to the 20 grid line, the limit of advance. In a moment of great frustration, McCauley, in the front seat of one of Bravo's Apaches, watched in his FLIR as hundreds of Iraqi vehicles moved steadily northward toward Basrah on the other side of the 20 grid line. He radioed Johnson to recommend a second attack across the grid line with every Apache available. Except for one engagement by one of his teams, Captain Steve Walters ran C Company all the way to the last 5 kilometers of his box before encountering the enemy. Walters' Apaches destroyed an assortment of MTLBs, T-62s, Type-59s, BMPs, and ZSU 23-4s, along with numerous trucks of all types.

Back at the corps main headquarters in the deep battle cell of the All-Source Intelligence Center, Hitt had received an updated JSTARS readout that showed thousands of moving targets on both sides of the frustrating 20 grid line. At 2230 Johnson forwarded McCauley's recommendation for a reattack and told Hitt the battalion was already rearming and refueling.

The Air Force attacked the area east of the 20 grid line with a series of single FB-111 strikes, where each dropped four 2,000-pound laser-guided bombs approximately every 20 minutes. When the air tasking order had been prepared more than 24 hours earlier, any targets east of this line were assumed to be well beyond the concern of the VII Corps commander. The methodical F-111 bombing sequence was never intended to blunt the mass withdrawal of several Iraqi armored divisions. If every bomb hit a vehicle, only 12 of several thousand would be knocked out each hour. When Hitt realized that the Iraqis were in full flight, VII Corps tried to get permission from ARCENT to attack into the Iraqi formation. Just one battalion strike with 18 Apaches could kill more than 100 vehicles in half an hour. Unfortunately, once the AT0 was in the execution phase, it was almost impossible to turn off. In the limited time available, ARCENT could not portray to CENTCOM how successful Franks' deep attack had been and how devastating a strike east of the 20 grid line would have been. The missed opportunity frustrated Franks and the 11th Aviation Brigade pilots. Franks had lost a chance to attack in depth by synchronizing maneuver and air power. As for the pilots, they had had to pass up an attack pilot's dream. To salvage as much as he could from the strike, Hitt ordered another attack in the same kill box to commence as soon as McCauley rearmed and refueled.

Rearming and refueling took longer than expected, but A Company was back in the air at 0130. For the second mission, McCauley ordered Vallet to attack from the south into what had been C Company's kill box while B Company reattacked in their original box. Vallet's second attack turned into a free-for-all. While his other crews systematically snaked their way through the kill box, Vallet focused

on a multivehicle convoy only 2,000 meters to his front. For three minutes Vallet worked the column over from his copilot-gunner position. Using classic tactics, he knocked out the lead and trail T-62s with Hellfires and switched to multipurpose submunition rockets as he closed on the convoy. He finished off the convoy with a hail of 30mm shells in a final pass.

Even though the Apaches had swept the boxes clean on the first mission, more combat vehicles of all all types continued to pour in from the south as the Iraqis rushed madly to escape Kuwait. McCauley's two companies expended all ordnance in fewer than 30 minutes. When they pulled out for the return, McCauley told Johnson he could do another attack, but it would be almost daylight before they would be finished. Johnson agreed that little was to be gained if they could not go beyond the Air Force limit line. The deep attack on Minden was over.

The raid on Minden knocked out much of the Iraqi 10th Armored Division. In the two separate 30-minute attacks, the 4-229th destroyed 33 tanks, 22 armored personnel carriers, 37 other vehicles, a bunker, and an undetermined number of Iraqi soldiers. Just 18 Apaches had broken the division's spirit and by, doing so eliminated any hope that al-Rawi might have of reinforcing his Republican Guard. The men of the 10th Armored Division-the second half of the Jihad Corps-their morale shattered, blew up their personnel bunkers, abandoned their tanks, and began walking north.

* * * * *

VII CORPS: C-DAY PLUS 3, DAWN

(map Enclosure G this appendix)

For the soldiers of VII Corps, however, the battle was far from over. Thus far, only the 2d ACR had been pulled off-line and put in reserve, replaced by the "Big Red One." Franks' intent remained unchanged: press the fight to destroy the Republican Guard no later than sunset on February 27. Fewer than 12 hours remained to complete the task. As the day progressed, the heavy morning fog dissipated. The theater remained under heavy cloud cover although the ceiling did lift to about 3,000 feet, allowing a greater use of close air support.

In the north, the 1st Armored Division was at least 15 kilometers ahead of 3d Armored Division. Griffith prepared to attack through Objective Bonn to Phase Line Kiwi. Already his Apaches were out forward, ranging freely about in search of the Medina Armored Division, the next and last major unbroken unit in their path.

Funk's 3d Armored Division had fought the Tawakalna's 20th Mechanized Brigade's southern battalion, as well as the majority of its armored brigade and part of its 18th Mechanized Brigade. Funk was now poised to penetrate the southern portion of the enemy defensive line with a 1st Brigade attack, while 3d Brigade passed through 2d Brigade in the north and continued the drive east.

Rhame's 1st Infantry, Division's two forward brigades had destroyed the southernmost battalions of the 18th Mechanized Brigade and the majority, of the 37th Armored Brigade as they clawed their way, meter by meter, through Objective Norfolk. Now they stood ready to continue the assault east across the Wadi al-Batin and into Kuwait. His lead elements were also some 15 kilometers forward of the 3d Armored Division.

In the far south at the hub of the wheel, Smith's British 1st Armoured Division, roughly on-line with Rhame's 1st Infantry Division to its north, finished a deliberate, set piece attack across the IPSA.

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pipeline and secured their final objective on the west side of the Wadi al-Batin. Smith's lead elements then regrouped for the attack across the wadi to seize Objective Varsity, deep inside Kuwait.

1st Armored Division: G-Day Plus 3, Dawn

At first light on February, 27, the 1st Armored Division with its three brigades shoulder-to-shoulder steamrolled east toward the Medina Armored Division. Griffith pulled back his Bradley scout vehicles before reaching the enemy main line. Thereafter the division front was made up exclusively of 350 M-1 tanks. * * *

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VII CORPS: G-Day Plus 3, 1800

(map Enclosure H this appendix)

Franks had intended to pass the 1st Cavalry Division around to the north of the 1st Armored Division on the afternoon of the 27th as the left wing of a double envelopment. The tank battle between the 1st Armored Division and the Medina, however, convinced him that to conduct such a maneuver any earlier than the following day would be unwise. CENTCOM had denied the corps' request for a boundary change with XVIII Airborne Corps that would have given the 1st Cavalry Division room to move around the 1st Armored Division. Without the boundary change, the risk of fratricide was too high. Therefore, Franks instructed the 1st Cavalry Division to remain behind the left wing of the 1st Armored Division, much to General Tilelli's disappointment.

The right arm of Franks' envelopment, the "Big Red One," had already crushed the Iraqi 37th Armored Brigade and had gone on the pursuit. Franks flew to the 1st Infantry Division tactical command post and told Brigadier General William Carter, Rame's assistant division commander, to continue the attack east. Franks tapped the map where the waters of the Persian Gulf meet the sand of Kuwait and said, "See this blue, this is the way home." The division marched on all day in order to be able to cut the Kuwait City-Basrah highway by dark. The 1-4th Cavalry had already crossed the highway shortly after 1630 and spent several harrowing hours into the evening out of contact with the rest of the division. Wilson eventually set up defensive positions astride the highway. Again, fear of fratricide intervened, and at 1030 Franks ordered the division to halt for the night to avoid any possibility of a nighttime collision with the right flank of the 3d Armored Division into whose path they were moving. Wilson's squadron spent the night processing more than 1,000 prisoners while cut off from the rest of the division by 25 kilometers.

After breaking through the armored crust of the Tawakalna, the 3d Armored Division overran the Iraqi division's artillery positions and remnants of the 10th and 12th Armored Divisions. Ahead of his division, Funk worked two Apache battalions-his own 2-227th Attack and the 11th Aviation Brigade's 2-6th Cavalry. As the division advanced, more prisoners began to appear, a sure sign that the Republican Guard's morale had finally begun to collapse. The division began to find entire battalion sets of combat equipment abandoned, some with vehicles still running, shells loaded in breeches, and radios switched on. By 2030, lead elements of the 3d Armored Division had reached Phase Line Kiwi, their limit of advance for the night.

The British 1st Armoured Division had secured Objective Varsity and was waiting for a decision on whether to continue to drive east to the Kuwait coast or to drive south and open a resupply route down the Wadi al-Batin. By 2030, Franks confirmed that the division would continue to drive east, securing its final objective between the north-south highway and the coast.

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By the evening of February 27, VII Corps had broken five Iraqi heavy divisions. the Tawakalna, Medina, 10th Armored, 12th Armored, and 52d Armored. Of the Republican Guard heavy divisions. only the Hammurabi remained reasonably intact. The infantry divisions along the Saudi border, now the southern flank of the corps, had disintegrated and were joining thousands of their comrades in VII Corps POW camps. They had no coherent defense. The Iraqi GHQ had lost the battle for Kuwait and now could only concentrate on survival.

* * * * *

CEASE-FIRE

VII CORPS: G-DAY PLUS 4, EARLY MORNING (***)

(map at Enclosure I this appendix)

The on-again, off-again cease-fire order also affected VII Corps. To finish the battle, Franks had intended to execute his double envelopment at 0500, with the 1st Cavalry in the north and the 1st Infantry Division in the south. The 1st and 3d Armored Divisions would press forward in their zones, as would the British 1st Armoured Division. This plan was never fully executed. Franks informed the heavy divisions that the cease-fire would take place at 0500 and issued guidance concerning rules of engagement. Those orders soon changed when Yeosock called the VII Corps tactical command post shortly after 0200 and relayed news that Schwarzkopf had delayed the cease-fire until 0800. The CINC wanted a major offensive action mounted before that time to destroy as much of the enemy as possible. Franks alerted Colonel Hitt's 11th Aviation Brigade for 'another Apache strike in the direction of the town of Safwan but changed the order to retain unity of command in the 1st Infantry Division sector. VII Corps was unable to contact General Rhame directly since he was forward commanding from an M-1 tank. Instead, Colonel Cherrie called General Carter and relayed the order for the "Big Red One" to continue the attack to the east and to get Apaches to attack toward Safwan. At 0400 Franks issued an order for the divisions to continue the attack. An ARCENT order to secure the crossroads at Safwan with ground forces never reached the 1st Infantry Division. causing major frustration later when Schwarzkopf mistakenly believed the crossroads were under US control. The other divisions on or near Phase Line Kiwi would continue to use that control measure as a limit of advance.

The attack began at approximately 0600. A 45 minute preparation from 8-inch and 155mm howitzers and MLRS rocket launchers preceded the 1st Armored Division's attack. By 0615 all units were advancing. but a report of a unit receiving friendly fire froze all movement between 0645 and 0705. Even as the divisions closed on their objectives, the 1st Infantry Division would clearly not reach the crossroads at Safwan before the cease-fire. The Apaches combed the area and found some Iraqi soldiers but few vehicles. At 0723, VII Corps ordered a temporary cease-fire.

At the time of the cease-fire, the 1st Armored Division was just short of the Kuwaiti border, having destroyed more than 100 tanks and armored personnel carriers in a cataclysmic final hour of combat. The 3d Armored Division was along Phase Line Kiwi, and the 1st Infantry Division had combat units a short distance south of the Safwan crossroads and as far east as the Kuwaiti coast. The British 1st Armored Division also succeeded in reaching the coast. The corps immediately assumed a hasty defensive posture as it began to refuel and refit the combat units

MILITARY VICTORY

(Enclosure J to this appendix)

A military force reaches its culminating point when continued combat operations-offensive or defensive-risk defeat in detail because of losses, resupply shortfalls, simple exhaustion, or growing enemy strength. Campaign plans strive to force the enemy to pass beyond his culminating point first. It can be a close-run race as it was in the October '73 War, with the outcome hanging in the balance to the last bloody moment, or it can be more distinctly linked to a catastrophic event such as the bombing of Japan in World War II. In the Gulf, CENTCOM never reached its culminating point. Despite the fact that many combat units were nearing exhaustion after days of uninterrupted fighting and moving, CENTCOM could have sustained operations considerably longer. The Iraqis, on the other hand, reached their culminating point when the Republican Guard was destroyed. Without the Guard's power and mobility, Saddam could not stop the Coalition. Schwarzkopf's correct assessment of the Guard as the Iraqi center of gravity assured overall victory once the Guard was eliminated as a viable threat. That moment was reached by midnight, February 27, when al-Rawi realized the magnitude of his defeat at the battle of Wadi al-Batin and ordered an immediate withdrawal of the remnants of the Republican Guard out of the KTO to positions designated for the defense of Iraq. * * * With the exception of the Hammurabi Armored Division, the majority of the remaining Guard armor had already reached or passed through the Basrah sanctuary en route to positions well inside Iraq. The 24th Infantry Division's blocking action along Fish Lake Causeway eliminated a brigade of the Hammurabi. After that fight, the remainder of the Hammurabi would slip away through Basrah. As many as one-third of the Guard's T-72s made it out of the KTO. The same was generally true for the regular army.

To some extent the Iraqis benefitted from the gap that grew between the two corps as VII Corps swept east and XVIII Airborne Corps reduced enemy resistance in the Euphrates Valley. The two-corps attack against the Republican Guard that ARCENT envisioned turned into a sequential affair with the XVIII Airborne Corps trailing Franks' VII Corps. By 1300 on the 27th, lead elements of the 1st Armored Division were almost 50 kilometers ahead of XVIII Airborne Corps. But the Adnan, Nebuchadnezzar, and al-Faw Republican Guard Infantry Divisions north of VII Corps were little threat to VII Corps' flank, and as XVIII Airborne Corps turned east, most of their units escaped north across the Euphrates or turned back to Basrah.

The time to kill Saddam's armor was before it reached the Basrah pocket, but once al-Rawi ordered a withdrawal, the chance to do so was fleeting. The night of the 26th, when the 11th Brigade Apaches worked over the 10th Armored Division, presented the best window of opportunity to eliminate the bulk of the Iraqi armored forces that eventually escaped. Both VII and XVIII Airborne Corps worked Apaches as deep as allowed on the 27th. Significantly, Peay's Apaches did not destroy a single tank in four hours of daylight attacks on EA Thomas just north of Basrah, suggesting that the bulk of the Iraqi tank elements had not yet reached that far north. Meanwhile, Franks' Apaches took a steady toll of Iraqi tanks through most of the day on the southern and western approaches to Basrah. The decision to leave everything east of the 20 Easting to air power rather than mount a series of Apache attacks against the retreating armor gave the Iraqi tanks the opportunity to run a rather porous gauntlet and seek sanctuary within the Basrah pocket. Close examination of the "Highway of Death," created by the Coalition air forces along the main road from Kuwait City to Basrah, showed the last majority of the destroyed vehicles to be trucks, cars, and buses looted from the Kuwaitis, none of which were capable of off-road movement. Saddam's armor, able to fan out across the desert, merely sidestepped to the east and retreated into Basrah.

Given the Coalition's need to minimize civilian casualties, the Republican Guard and regular armored forces were safe from air attack once inside Basrah. The only way to have stopped the escape of

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Iraqi armor at that stage would have been to completely seal the theater by closing all exits by air or by blocking them with ground troops. An air assault by ground combat forces into EA Thomas was not tactically feasible until the 28th. With more than 20 bridges and causeways leading out of the KTO, cutting them all and keeping them cut from the air proved impossible. By March 1, Republican Guard armored and mechanized units had reached as far north as al-Quarnah, almost 100 kilometers north of Basrah. These units were not fleeing in disorder; their march order was disciplined. As they halted, tanks dug dispersed revetments with 360-degree security. They were leaving one fight to join another against the Shin and Kurds. To have reached so far north on the 1st, the Guard armor had to have moved into Basrah on the 27th, if not the 26th.

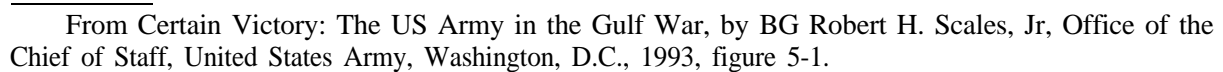
The weather played a hand by interfering with air interdiction against the bridges. During the ground operation, the weather was the worst the area had experienced in 14 years. Even before the air operation began, the Iraqis had pre-positioned pontoons, barges, and extension bridges to offset the effects of bombing against their transportation network. Once the war began, Iraqi engineers worked furiously, and effectively. Under cloud cover and rain, they quickly built by-passes around damaged bridges or bulldozed causeways across the relatively shallow rivers. On March 1, the Rumaylah Causeway was operational as was at least one bridge inside Basrah. Given the poor weather and inability to see them with overhead systems, the bridges were probably, in service during the night of the 27th. Only that would explain the Republican Guard's presence at al-Amarah, 200 kilometers north of Basrah, on March 2

That said the Iraqi military machine that sputtered out of the Basrah pocket was still a beaten army. In the next few weeks, its fight against the Shia and Kurdish insurgents proved to be a close-run race. As in the past, Saddam's Republican Guard proved its loyalty to the regime by leading the fight to crush the rebels. However, the Republican Guard was but a shadow of its former self. Forced to reconstitute, the Guard stripped its regular army brethren of the best equipment, reducing even many regular heavy divisions to shells. Six months after the campaign, the 5th Mechanized Division surrendered in mass to Kurdish rebels in northern Iraq. As for the Republican Guard, some of its units were beyond help. Obliterated by Franks' VII Corps, the Tawakalna Mechanized Division was deactivated.

In 41 days of air operations culminating in a lightning 100-hour ground battle, the Coalition had utterly crushed the Iraqi military machine, liberating Kuwait from its occupiers. While the Marines, the "Tiger" Brigade, and the Arab Coalition forces had rolled over Fortress Kuwait, ARCENT had unhinged the Iraqi defense of the KTO with the XVIII Airborne Corps and VII Corps' Great Wheel. General Luck had reached out and strangled the Highway 8 lifeline to Saddam's forces. General Franks had ridden roughshod over the Republican Guard, destroying the center of gravity of Saddam's defense of the KTO *

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Enclosure A to Appendix 4 to Advance Sheet, Lesson I Opening Situation

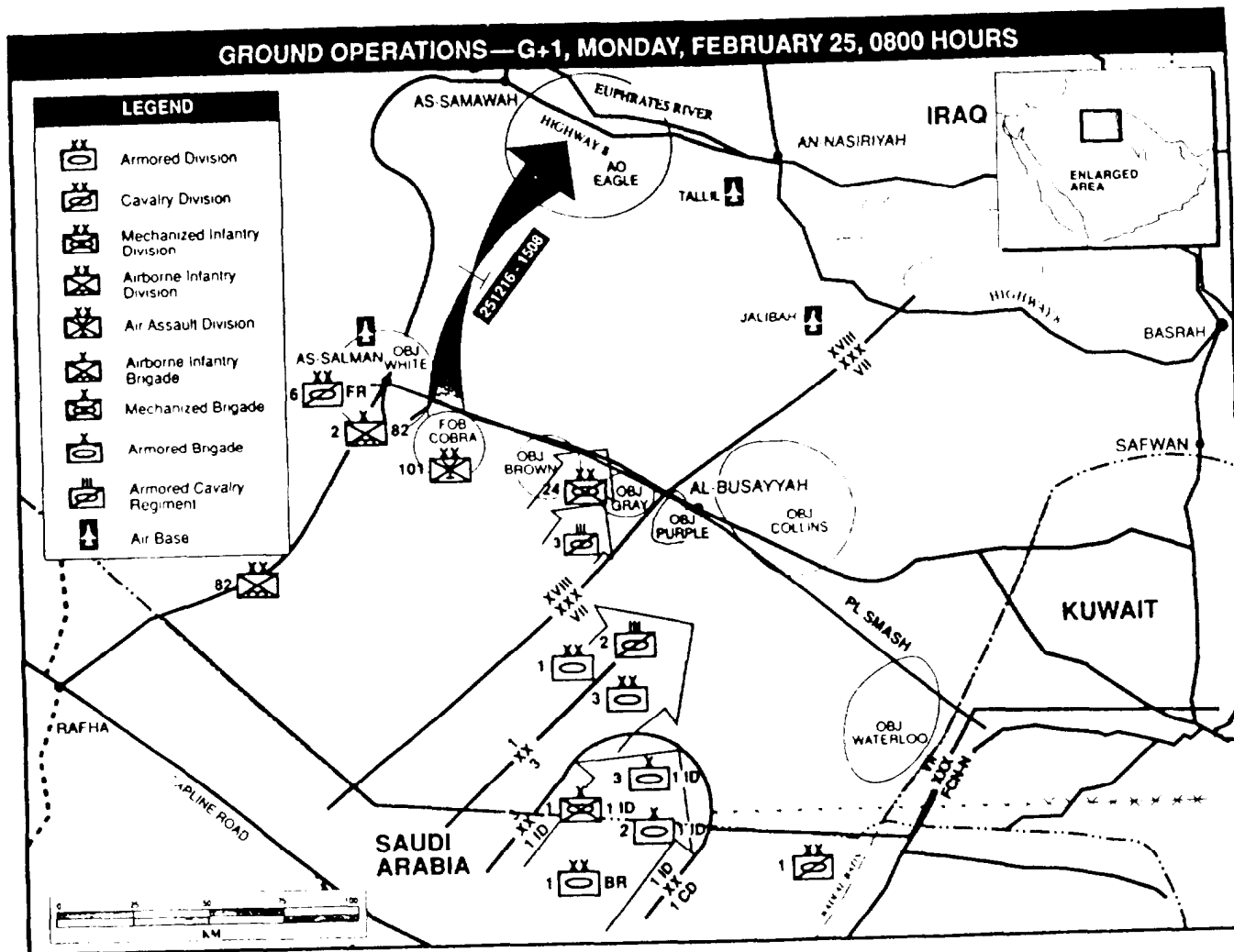


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COMBAT OPERATIONS

Lesson 1. United States Army Doctrine

Enclosure B to Appendix 4 to Advance Sheet, Lesson 1, Situation G+ 1 0800 hrs



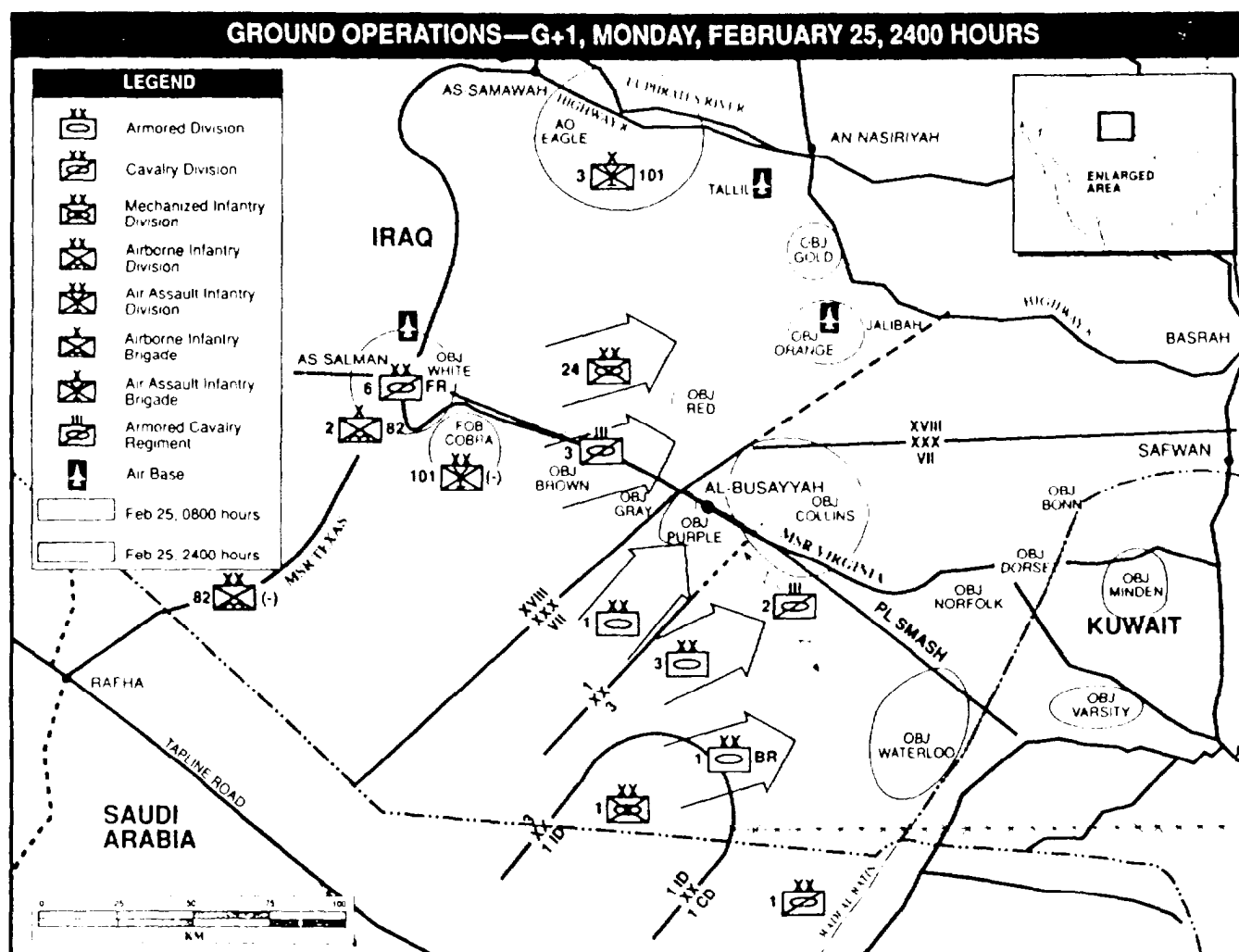
From Certain Victory: The US Army in the Gulf War, by BG Robert H. Scales, Jr, Office of the Chief of Staff, United States Army, Washington, D.C., 1993, figure 5-2.

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COMBAT OPERATIONS

Lesson 1. United States Army Doctrine

Enclosure C to Appendix 4 to Advance Sheet, Lesson 1, Situation G+1 2400 hrs



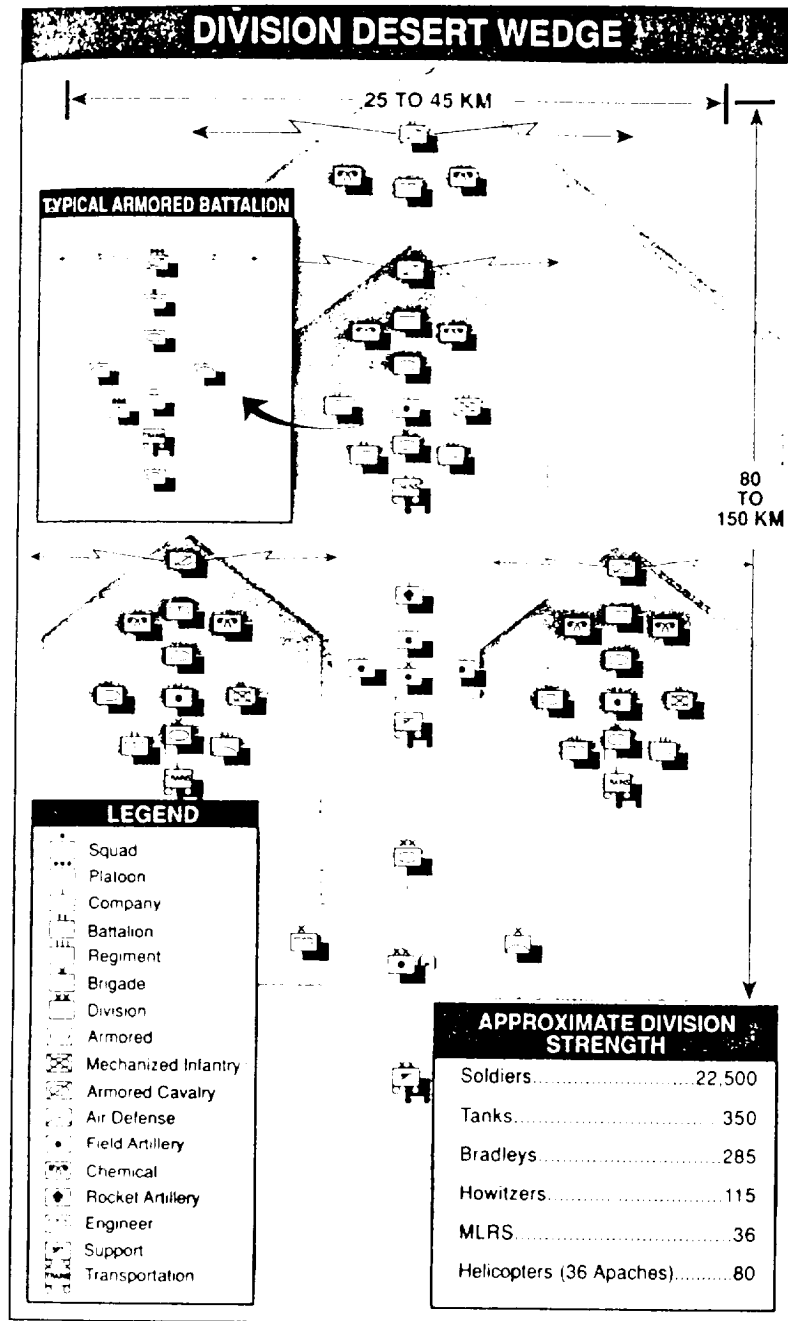
From Certain Victory: The US Army in the Gulf War, by BG Robert H. Scales, Jr, Office of the Chief of Staff, United States Army, Washington, D.C.1993, fig 5-3.

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COMBAT OPERATIONS

Lesson 1. United States Army Doctrine

Enclosure D to Appendix 4 to Advance Sheet, Lesson 1, Division Desert Wedge



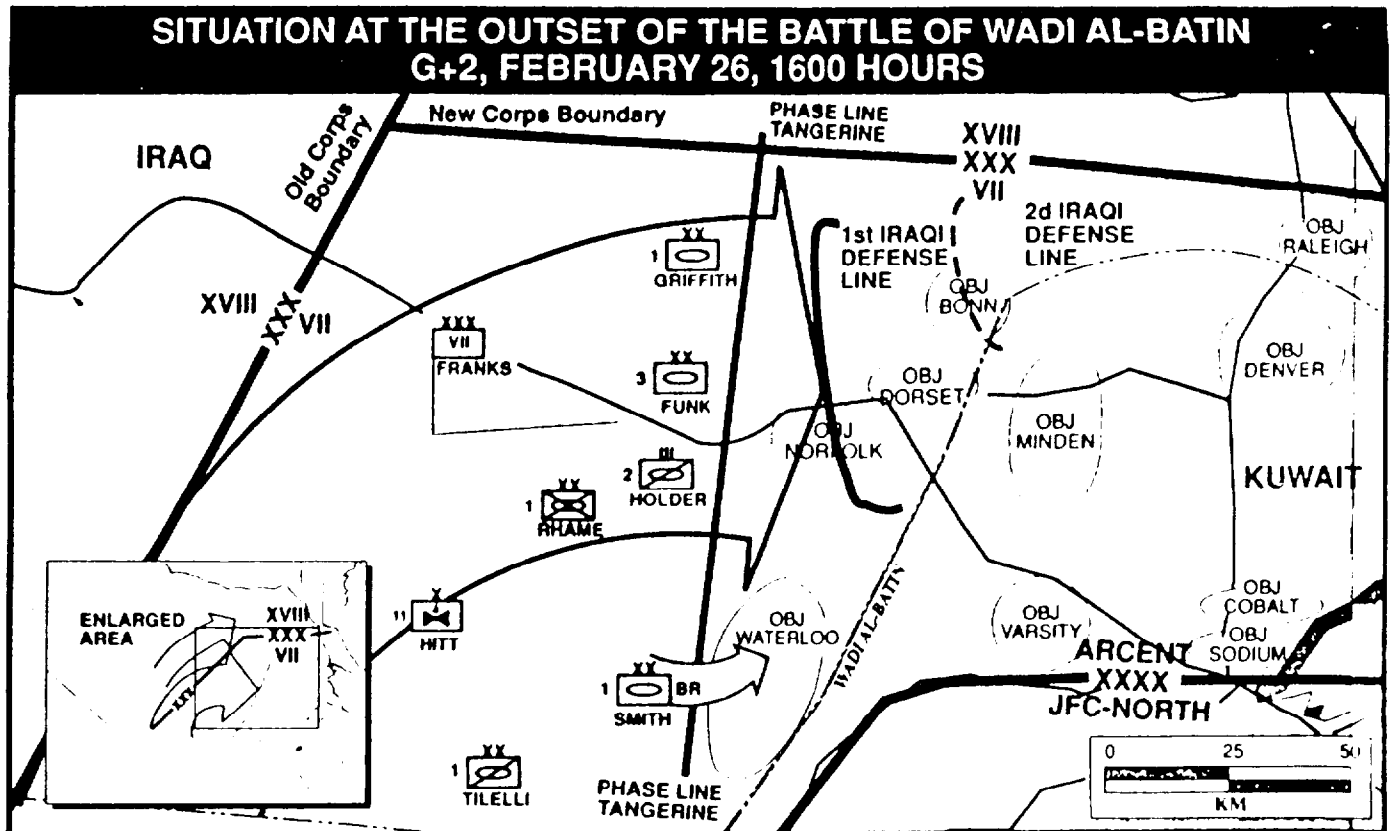
From Certain Victory: The US Army in the Gulf War, p 239

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COMBAT OPERATIONS

Lesson 1. United States Army Doctrine

Enclosure E to Appendix 4 to Advance Sheet, Lesson 1. Battle of Wadi Al-Batin - Outset



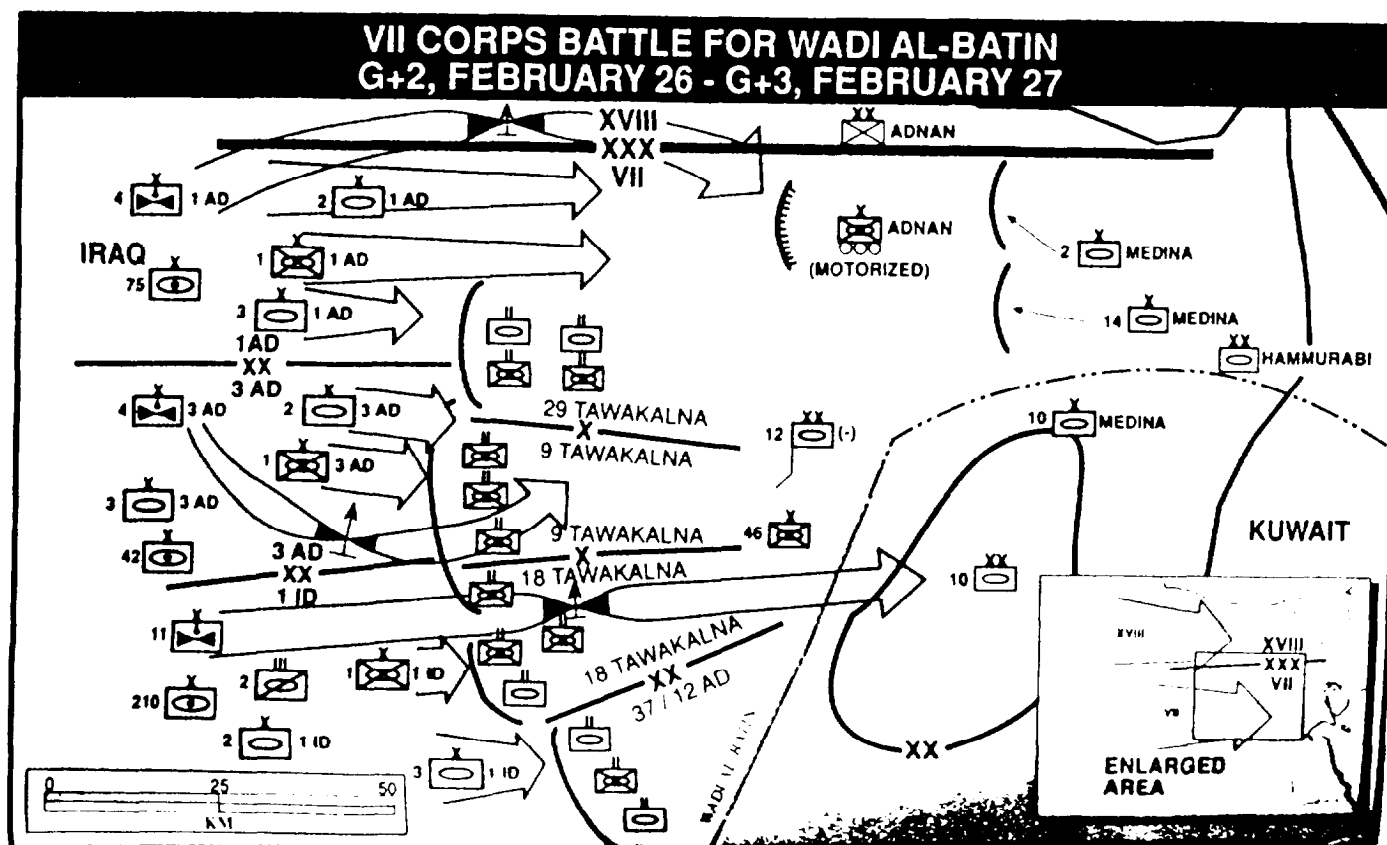
From *Certain Victory: The US Army in the Gulf War*, p 263.

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COMBAT OPERATIONS

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Enclosure F to Appendix 4 to Advance Sheet, Lesson 1. Battle of Wadi Al-Batin



From *Certain Victory: The US Army in the Gulf War*, p 266

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Lesson 1. United States Army Doctrine

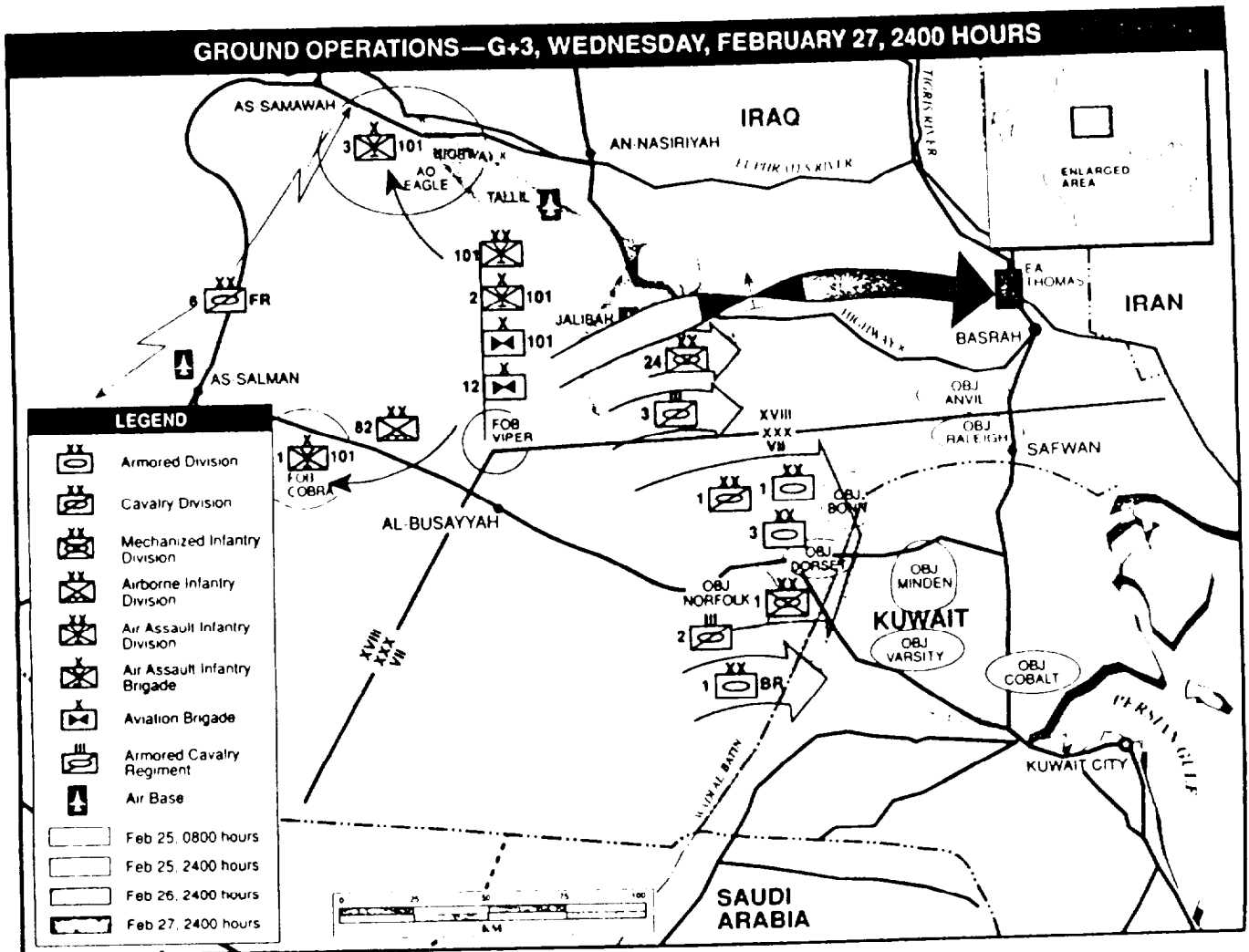
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COMBAT OPERATIONS

Lesson 1. United States Army Doctrine

Enclosure H to Appendix 4 to Advance Sheet, Lesson 1. Situation G+3 2400 hrs



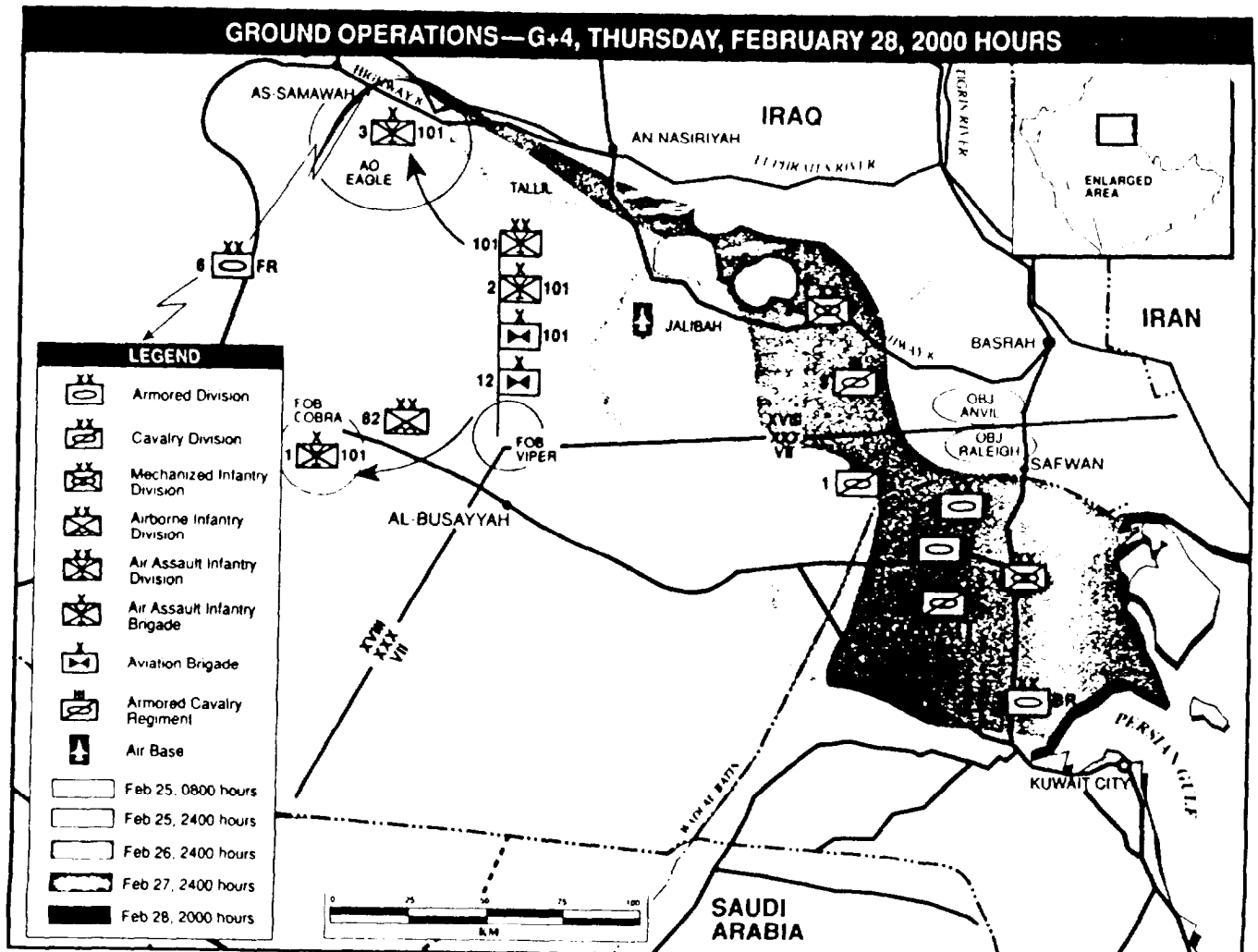
From Certain Victory: The US Army in the Gulf War, figure 5-5.

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COMBAT OPERATIONS

Lesson 1. United States Army Doctrine

Enclosure 1 to Appendix 4 to Advance Sheet, Lesson 1. Situation G+4 2400 hrs

From *Certain Victory: The US Army in the Gulf*

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COMBAT OPERATIONS**Lesson 1. United States Army Doctrine**

Appendix 5 to Advance Sheet, Lesson I : Operation Desert Shield/Storm

Operation Desert Shield/Storm

It is too early to assess the recent conflict in the Gulf. The facts are not all in. It has become apparent already that many official pronouncements during and after the war were hyperbole. Estimates of Iraqi strength have been reduced by two-thirds. Vaunted fortifications and sand berms did not exist. New technologies such as laser-guided missiles and cruise missiles were less accurate than originally claimed, and we know now that the Iraqis, while excellent at old-fashioned camouflage, knew little about high-technology countermeasures. And official assessments released after the war are known to be skewed to influence future budgetary battles on Capitol Hill.

Operation Desert Storm revealed many deficiencies. Any number of "what ifs?" could have made a big difference in the outcome of the conflict. Most obvious was the inability to handle coups de main. Another was the vulnerability of early-arriving light forces to Iraqi armor. Another shortfall was the state of readiness of US military units. Though the operational tempo of American units is high, unit cohesion and training proficiency are not high because of continuous personnel turnover. The personnel system caused other deficiencies, like (1) the inability to maintain low-cost political pressure upon Saddam Hussein by rotating out acclimated units and returning them quickly should fighting occur; and (2) the inability to sustain units in the region for indefinite periods without losing their cutting edge as large numbers of personnel pass through units in the same manner as occurred a quarter of a century earlier in Vietnam.

Desert Storm: True Maneuver Warfare?

However, these and other questions relating to technology and the political conduct of the war need not be addressed in this appendix dealing with only one facet of the war-maneuver. The questions addressed here are narrow ones. How well did the Hail Mary maneuver-the sweeping movement of mobile forces from the extreme left of coalition forces into southern Iraq-conform to the claim that it was a maneuver-based envelopment of historical significance? How well did tactical air power adapt to the new maneuver doctrine advocated by the Army and Marine Corps? To evaluate these questions, we use the criteria developed in the case studies presented in this book.

Tempo

In Operation Desert Storm, units moved hundreds of kilometers in a matter of days. This compares well with Soviet operations in the latter part of World War II and in Manchuria in August 1945. Desert Storm, however, was more movement than maneuver, in part because the Iraqis themselves proved so passive. Given their passivity, tempo-the notion of entering into the enemy's observation-

From Air Power and Maneuver Warfare by Martin van Creveld, Kenneth S. Brower, and Steven L. Canby, Air University Press, 1994, pp 213 through 220.

orientation-decision-action (OODA) cycle-never came into play. Tempo embodies the concept of acting before the other can react. The concept does not have much meaning if the other hardly reacts at all.

Evaluation is difficult when there has been no testing. However, several markers should be noted. In Desert Storm, Army units and one of the two Marine divisions attacked abreast, which implies there may have been little room for exercising tempo had the opportunity presented itself. At a critical juncture, VII Corps was apparently more interested in synchronizing the moves of its own components than in vigorously exploiting battlefield success by sending spearheads forward. More ominous were air operations with their lengthy preparations and complex tasking involving many kinds of aircraft, all of which had to be coordinated with each other. Air forces definitely were not oriented to the tempo of operations required for maneuver warfare.

Schwerpunkt

On public television watched by hundreds of millions, General H. Norman Schwarzkopf proclaimed his Hail Mary maneuver as the equivalent of a modern Cannae. This is hyperbole, for Hail Mary lacked the numerous subtleties built into Hannibal's entrapment of the Romans. Instead, the way Hail Mary was executed reminds one of the famous Schlieffen Plan in 1914: an infantry wheel attack carried out by mechanized formations. As such, the attack was linear (rather than thrusting). It lacked a discernible center of gravity, and operational reserves did not exist. An opponent with suitable forces and suitable commanders would have launched a major counterattack at the pivot between the allied wings. With no reserves, such a counterattack could have been extremely dangerous.

Had there been a center of gravity, where should the attack have been launched? Apparently VII Corps in the middle was considered the point of main effort. It is often difficult to discern the point of main effort, but in this case it was not. The Iraqi military had grossly overextended itself in and around Kuwait, and its complete lack of air cover meant it could not have responded to allied strategic and operational maneuvers. Given such circumstances, an armored thrust to Nasiriyah on the Euphrates and subsequently behind the large water barrier to Qumrah on the Tigris would have placed a stranglehold on the Iraqis (see Enclosure A to this appendix). The block at Qumrah would have been difficult to dislodge because of the peculiar terrain. The block at Nasiriyah would have required an attack by Republican Guard divisions moving 150 kilometers in open desert. These divisions lacked air defense, and the Iraqi army has never demonstrated combined-arms proficiency.

Nothing was gained by attacking with the VII Corps and by moving the 24th Division along the road to Basrah except the pleasure of "kicking ass." In retrospect, this entire effort may have been a major political mistake because the ease with which the Iraqis were destroyed by the coalition so panicked the Sunni Muslims fearful of increased Iranian influence that the Saudis in turn pressed for a quick cease-fire. The numerically smaller but politically dominant Iraqi Sunnis were forced into backing Saddam, however much they might have liked to have dumped him.

Alternatively, had the US forces been truly maneuver oriented, they might have launched a strategic thrust on Baghdad. This would have been successful because the Iraqis had made a major mistake in the deployment of their forces: the divergence between their militarily unprotected strategic center of gravity (Baghdad) and their operational center of gravity-the Republican Guard divisions southwest of Basrah. Within Kuwait, Iraq's military position appeared tactically and operationally strong as long as her Republican Guards and main army were mutually supporting. Had the Iraqis proved strong, it would have been necessary to have drawn the Republican Guards away and to have strung them

out in the desert so as to expose them to air attack and to break the mutual support, and with it the coherence of their defense in Kuwait.

A thrust to Baghdad would have served multiple objectives. It could have overthrown the regime, or it could simply have forced the Iraqis to cover Baghdad by moving Republican Guard divisions from Kuwait to Baghdad. One or the other falls. Either accomplishes the mission

Surprise

The Hail Mary maneuver was a definite surprise to American television viewers at home. Everyone believed the attack would come in the form of a frontal assault, which in fact was the case to a limited extent. Both Marine divisions and the Arab divisions did attack frontally. Apparently, while the Iraqis thought the allies might attack in a narrow hook along the Wadi al Batin, they did not expect a wide flanking sweep. The desert was apparently thought to preclude that possibility. Thus, Desert Storm ranks high by this criterion. At the same time, since the sweep did take several days to slide out and sweep in, the Iraqis must be credited with poor intelligence and perhaps with a command system that was reluctant to pass along unwanted news.

Combined Arms

The Army and Marines fought in their accustomed combined-arms manner. Tactical air power was used as it has always been used in the past. It was not integrated into the ground maneuver scheme the same way as the Luftwaffe and the Soviet air force were in World War II. It will be recalled that the Soviet air force, which of all the air forces in World War II was the most attuned to maneuver, only brought air power into play days before a major campaign was to begin.

In Desert Storm, a true maneuver orientation would have implied unleashing the ground attack almost immediately after air superiority was obtained. Air power would have focused its efforts on the region in front of the planned attack by VII Corps, thus ensuring that its moves would not have been obstructed by Iraqi ground forces. The attacks against Iraq's infrastructure would have been largely dispensed with, thus obviating the need for a prolonged air campaign that carried political risks.

If ever there were a case where tactical air power could have been integrated into the theater commander's scheme of maneuver for decisive effect, this was it. This effect would have been decisive had the plan been a strategic thrust to Baghdad. It would have been important, too, had the plan been a strategic turning movement aimed at Nasiriyah. These formulations would have given all services a combined-arms play as follows:

- (1) The Marines, both those ashore and those afloat, would have *pinned* Iraqi infantry in place.
- (2) Army heavy units would have served as the *magnet* to induce Iraqi mobile and static forces to become separated from each other by drawing the mobile arm into an exposed march
- (3) Air power would have acted as the catalytic force. It would have decimated exposed armor in movement and spoiled Iraqi operational tempo so that the Republican Guards themselves could have been pinned and enveloped by the Army.

Flexibility

Thanks to the prolonged deployment period and the suspension of the normal personnel replacement system, US units were well trained, cohesive, and among the best ever deployed by this country, especially in the opening phase. Presumably, had they been tested by a proactive opponent, they

would have displayed flexibility. However, their flexibility on the ground was never put to the test. Air operations, as earlier mentioned, failed this test.

Decentralized Command

A central tenet in German-style maneuver was the so-called *Auftragstaktik*, or mission-type orders. Each commander from corps down to the squad is given the unit's mission and allowed to plan and execute it himself. Soviet-style operational warfare was, by contrast, highly centralized. In Desert Storm, it appears that operations remained more or less as they have in the past, which is to say that they were centralized. Many senior officers, however, argue the contrary. It is difficult to sort this criterion out because at this time, "centralization" is too much like the "half-filled glass of water." What one asserts is mission orders is seen by another as a detailed directive.

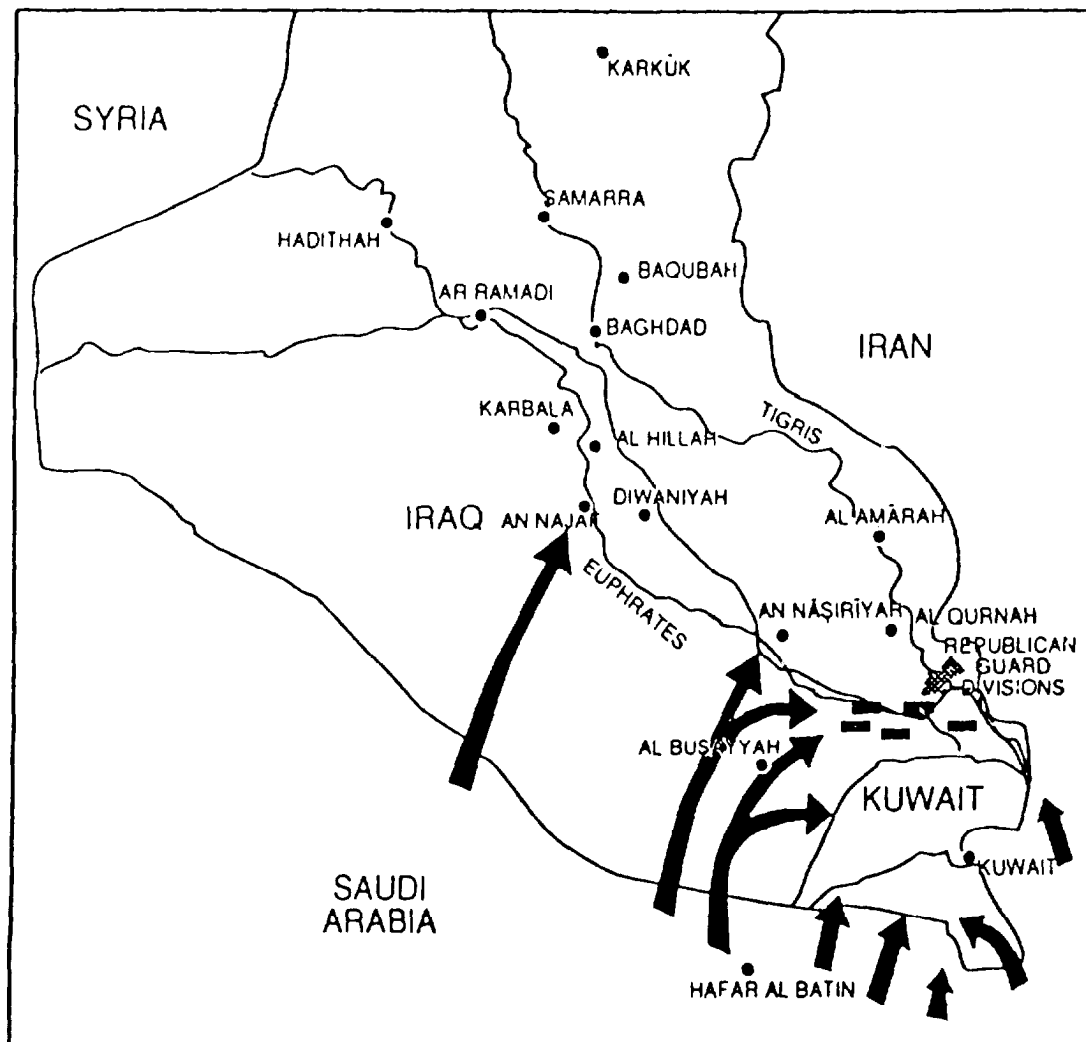
Summary

To sum up, judged by maneuver warfare criteria, Operation Desert Storm lacked the most important criterion—the kind of interplay between opposing forces that an alert opponent would have created. As a result, it only contained at best a single and rather simple maneuver. That maneuver was carried out by the main striking force (VII Corps) without any clear thought concerning the role that other forces could play in the scheme. Within VII Corps itself, a clear *Schwerpunkt* was lacking. Apparently, there was more thought given to keeping one's own units abreast of each other than to rapid movement with the aim of penetrating deep into the Iraqi rear. True maneuver warfare would either have gone to Nasiriyah or sent a thrust to Baghdad, thus forcing the Republican Guard to come out and fight; neither of these took place.

As to the air campaign, much of its month-long activity focused on Iraq's infrastructure and was therefore irrelevant to maneuver warfare. A maneuver-oriented air force would have done much less against the Iraqi rear and also avoided extensive strikes against Kuwait except, perhaps, as a way of pinning down the enemy and misleading him as to the location of the main effort. Instead, it would have waged a brief and concentrated campaign to facilitate the task of VII Corps: once the Hail Mary maneuver was under way, it would have focused on preventing movement by the Republican Guard or, should it have moved nevertheless, tearing it to pieces in the open desert. None of this is to criticize the performance of the USAF, which, as results show, achieved very significant victories at exceedingly low cost. It is, however, to say that Desert Storm was not a good example of maneuver warfare and that an air force that had this kind of warfare in mind would have acted differently from the way the USAF did.

COMBAT OPERATIONS**Lesson 1. United States Army Doctrine**

Enclosure A to Appendix 5 to Advance Sheet, Lesson 1:



From *Air Power and Maneuver Warfare* by Martin van Crevald, Kenneth S. Brewer, and Steven L. Canby, Air University Press, 1994, p 216.

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COMBAT OPERATIONS**Lesson 1. United States Army Doctrine**

Appendix 6 to Advance Sheet, Lesson 1. Practical Exercise

1. Based on your comprehension of the readings in lesson I of this advance book, answer the following:

- a. What impact did the logistics bases have on the ARCENT plan?
- b. What were the major challenges in supporting the ARCENT main and supporting efforts?
- c. Who was the VII Corps main effort on G-Day?
- d. What was the main efforts mission (task and purpose) on G-Day'?
- e. With reference to log base Echo, do you think logistics planners were anticipating a 260 km march in 90 hours by the corps?
- f. What was the decisive point on 27 February (G+3)?
- g. Who was the main effort applied against the decisive point'?

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COMBAT OPERATIONS**Lesson 1. United States Army Doctrine**

Appendix 7 to Advance Sheet, Lesson 1, Practical Exercise Solution

- a. What impact did the logistics bases have on the ARCENT plan?

ANSWER. The establishment of logistics bases was a key feature of the plan. Theater logistics bases are instrumental in forward staging of Class III (bulk) and Class V. The concept of support for offensive operations normally results in CSS units positioned well forward. This allows the LOCs to be shortened to facilitate continuity and the responsiveness of the tactical logistics functions. In preparation for G-Day, 29.6 million meals, 36 million gallons of fuel, and 114.9 Thousand tons of ammunition were moved forward to positions west of Wadi Al-Batin. To support the deception plan, logistics bases could not be set up west of the Wadi Al-Batin before air operations began. Therefore, the above mentioned supplies had to be moved quickly. Based on the forward locations of the logistics bases, security and discovery by the Iraqis was also a concern.

- b. What were the major challenges in supporting the ARCENT main and supporting efforts?

ANSWER: A big challenge was the actual identification of the main effort. Normally priority of logistics support goes to the main effort to allow for sufficient logistics resources to prevent culmination due to lack of critical supplies. There are situations where a supporting effort may have priority of support for a specific commodity for a specific time to allow completion of the supporting effort mission. The determination is made based upon the logistics demands of the critical/essential task/mission to be completed by the main and supporting efforts. Again, based on this being an offensive operation, CSS units had to be positioned well forward to ensure adequate support was provided to both the main and supporting efforts.

Consider the five logistics characteristics (anticipation, integration, continuity, responsiveness, and improvisation). How can you best support the commander? Where does the weight of your support need to go? What is the follow-on plan? All these factors and more help determine where the priority goes.

- c. Who was the VII Corps main effort on G-Day?

ANSWER. On 24, February 1 ID was the VII Corps main attack, yet the task of the 1 ID was to breach. Implied in the task was the purpose to create space for the 1 UK Division. This implication is hard to 'ascertain from reading the article. More noteworthy, the purpose of 1 ID did not directly contribute to the objective of VII Corps: the destruction of the RGFC. The contribution of 1 ID on that opening day of the VII Corps offensive, was important but not essential to the success of the VII Corps. It could be argued that 1 ID was really a supporting effort to another supporting effort, specifically the 1 UK Division. Others may argue that doctrine allows for a shift in the main effort. This is true, yet we typically shift main efforts when an unforeseen opportunity presents itself or when our original main effort is no longer able to accomplish our mission. We could look to another unit, a supporting effort, to accomplish our assigned purpose. This would be a good example of the tenet agility. Since 1 ID was not assigned the mission to accomplish the VII Corps purpose, it was not a main effort. It was really a supporting effort with a 'direct' relationship to another supporting effort, the 1 UK Division.

Another important indicator that 1 ID was not the main effort was the Corps Commander's decision to shift the 3 AD, the 1 AD, and the 2 ACR to the west rather than have them follow 1 ID through the breach. 2 ACR had moved north early after cutting 43 gaps in the sandy berm, paving the way for the two heavy divisions. 1 AD or 3 AD must have been the main effort best able to accomplish the purpose of the VII Corps. We don't know for sure which one was the main effort. The writer suggests that a 'three division fist' was the true main effort.

The concept of 'main effort' is vital in a plan. The notion of 'nested concepts' is vital in a plan. Without a true application of these concepts in a plan, we are not likely to achieve the most important principle of war, 'Objective'. The units we assign missions to in a plan must have a clear understanding of the purposes they, must achieve, and how each one relates to one another, and how each contributes to the main effort's success. Only in this way will we truly, be able to direct everyone toward a common goal.

d. What was the main efforts mission (task and purpose) on G-day'!

ANSWER: This question is hard to answer. The designated main attack was 1 ID. Yet, we have seen that their mission was subsidiary to the purpose of the VII Corps. The main effort was either 1 AD or 3 AD. We can't be sure which one. Since 3 AD was in the center and appeared to be the division with the responsibility for destruction of most of the Republican Guard, we could say it was the main effort. But this would only be true if we substitute the task "destroy" (what in a mission statement) for a purpose (the **why** of a mission statement). The problem is that we cannot really tell who the main effort was, because we don't know the purpose of either division. The task "destroy" drove all planning. Since a task word is used instead of a 'purpose' it is hard to tell which division's unique contribution ultimately contributed to success of the corps. The two divisions with relatively clear purpose, were both supporting efforts. 1 ID : breach to create space for 1 UK Division's flank attack. 1 UK Division: destroy tactical reserves of the enemy first echelon defense to protect the flank of 3 AD.

If you choose 1 ID as the main effort then its task was to breach or penetrate, if you choose any other division it was destroy, if you choose 2 ACR it was cover. These tasks are really unimportant. They do describe the minimum effects to be achieved but they don't really tell us or the units why these minimum effects needed to be achieved.

e. With reference to LOG base Echo. do you think logistics planners were anticipating a 260 kilometer march in 90 hours by the corps?

ANSWER: They did not anticipate a continuous march averaging three kilometers per hour for 90 hours. Planners anticipated a pause on Objective Collins. It became clear early in the operation that LOG BASE Nelligen would have to become more than a trailer transfer point. The driving force for an M1 heavy corps is to refuel each M1 every 8 hours. A heavy division uses about 600,000 gallons of fuel per day. Anticipation, responsiveness, and continuity may have been the most important logistics characteristics for this operation.

Planners 'anticipated a longer fight. Nobody expected that lengthy a move forward. They were counting on an overnight operational pause in Objective Collins while they anticipated the enemy's reaction. Logistics characteristics here include: anticipation - (always planning ahead), responsiveness (providing support to commanders), improvisation (expediting actions, adapting to changing situations).

f. What was the decisive point on 27 February (G+3)?

ANSWER: WC could safely say it was the encirclement of the RGFC to prevent their escape to the Northeast. In order for this to occur, VII Corps needed to speed up its attack and bypass those enemy forces that would try to prevent VII Corps from attaining its objective. Follow and support forces (1 CD) might have dealt with Iraqi forces left behind that chose not to surrender.

h. Who was the main effort applied against the decisive point?

ANSWER: Apparently the I ID since it seemed to be enjoying the most rapid advance. Yet, we can not help but get the impression that 1 AD was the one unit in VII Corps, aside from the aviation brigade, in the best position to rapidly move to block the RGFC.

COMBAT OPERATIONS**Lesson 2. Logistics in U.S. Army Doctrine****SCOPE**

This lesson discusses logistics doctrine, with emphasis on the tactical logistics functions, and introduces combat w-vice support (CSS) units at division and corps level. Although this lesson will not make you a subject matter expert in combat service support organizations and capabilities, it will expand your understanding of combat service support organizations and functions. You will focus at the division and brigade levels. Corps level units and capabilities will be addressed only in relation to how they directly support the division and the operations they conduct within the division area. Your goal for this lesson is to expand your knowledge of the division's logistical systems. You will build on this knowledge in later lessons.

ENABLING LEARNING OBJECTIVES

B.01 TASK: Explain the organization and missions of the Division Support Command (DISCOM) of a heavy division.

CONDITION: Given assigned readings, a written requirement, with references.

STANDARD: The explanation must include-

- The three companies of the Forward Support Battalion (FSB).
- The six companies of the Main Support Battalion (MSB).
- The three companies of the Division Aviation Support Battalion (DASB).

The command and control relationship of the Division Support Command (DISCOM) with each company in the DISCOM.

- The support relationship of each Forward Support Battalion, the Main Support Battalion and the ASB to the maneuver and aviation brigades respectively.
- Be IAW FM 63-2, FM 63-20, FM 63-21, FM 63-23, ST 63-1, and ST 101-6

LEVEL: Comprehension.

PJE Phase I Objective Number: 1a

B.02 TASK: Explain the organization and missions of a typical Corps Support Command (COSCOM).

CONDITION: Given assigned readings, a written requirement, with references.

STANDARD: The explanation must include-

- The two functional control centers, Corps Movement Control Center (CMCC) and Corps Material Management Center (CMMC).
- The typical functional battalions.

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- The typical organization and missions of the Corps Support Group (CSG) (Rear)
- The typical organization and missions of the Corps Support Group (CSG) (Forward)
- The multifunctional Corps Support Battalions (CSBs)
- How the Corps Support Command (COSCOM) supports the Division Support Command (DISCOM) of a heavy division.
- Be IAW FM 63-3, ST 63-1, and ST 101-6.

LEVEL: Comprehension

PJE Phase 1 Objective Number: 1a

B.03 TASK: Explain how the tactical logistics functions support combined arms operations.

CONDITION: Given assigned readings, a written requirement, with references

STANDARD The explanation must-

- Name the tactical logistics functions and describe how logistical support is provided to units in the main battle area.
- Be IAW FM 63-2, FM 63-3, FM 63-20, FM 63-21, FM 63-23, FM 100-5, and ST 63-1

LEVEL: Comprehension

PJE Phase I Objective Number: 1a

ISSUE MATERIAL

1. ADVANCE ISSUE

None

ASSIGNMENT

1. INSTRUCTIONS

Use the lesson guide to assist you in achieving the lesson learning objectives. Reading assignments focus on how the division is organized for logistics support and how that organization operates on the battlefield. Follow the study requirements and read all materials at the suggested times. Your assigned readings may seem to bounce around a bit. This is the result of a deliberate effort to minimize overlapping or redundant presentation of material, yet maximize your familiarity with key doctrinal references. Most of the readings are in FM 63-2, *Division Support Command* and ST 63-1, *Division and Corps Logistics*. These manuals provides a broad view of division level logistics operations. If you need more detailed or comprehensive information, refer to the appropriate chapters in FM 63-3, *Corps Support Command*; FM 63-20, *Forward Support Battalion*; FM 63-21, *Main Support Battalion*; and FM 63-23, *Aviation Support Battalion*. The lesson guide is intended to supplement and highlight the material in the readings. It is not a substitute for them. There is a lot of information in this lesson. Not all of what you learn will be put to immediate USC, but it will be needed during later lessons and other subcourses. To

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enhance your learning, answer all questions yourself before going on to the provided answers and discussions.

2. STUDY REQUIREMENTS

a. Head.

(I) FM 63-2, chapter 1, DISCOM Sustainment Mission, Sustainment Planning, Sustainment Imperatives, DISCOM Sustainment Organization, and Deployment of DISCOM Elements.” (7 pages).

(2) FM 63-21, chapter 1, MSB Organization and Mission, Battlefield Locations, and MSB Support (5 pages).

(3) FM 63-21, chapter 2, Organizational Relationships (2 pages).

(4) FM 63-20, chapter 2, Organization and Mission and Battlefield Locations (6 pages).

(5) FM 63-20, chapter 3, Organizational Relationships, (5 p&ages)

(6) FM 63-23, chapter 2, Organizations and Missions and Battlefield Locations (3 pages).

(7) FM 63-23, chapter 3, Organizational Relationships (4 pages)

(8) FM 63-3, chapter 1, COSCOM Support Mission, COSCOM Support Organization, and Support to Divisions, Separate Brigades, and ACRs (19 pages).

(9) FM 100-5, chapter 12, Logistics (12 pages).

(IO) FM 63-2, chapter 9, Moving the Force (5 pages).

(11) ST 63-1, chapter 4, Moving the Force (10 pages)

(12) FM 63-2, chapter 6, Class V Support Organizations and Class V Support Operations (5 pages).

(13) ST 63-1, chapter 5, Arming the Force (9 pages).

(14) FM 63-2, chapter 7, Fueling the Force (4 pages)

(15) ST 63-1, chapter 6, Fueling the Force (6 pages)

(16) FM 63-2, chapter 8, Fixing the Force (12 pages).

(17) ST 63-1, chapter 7, Fixing the Force (13 pages)

(18) ST 63-1, chapter 8, Manning the Force (6 pages)

(19) FM 63-2, chapter 5, Sustaining the Soldier (19 pages).

(20) ST 63-1, chapter 9, Sustaining Soldiers and Their Equipment (5 pages).

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3. REFERENCES

- a. FM 63-2, *Division Support Command* (20 May 91)
- b. FM 63-3, *Corps Support Command* (30 Sep 93)
- c. FM 63-20, *Forward Support Battalion* (26 Feb 90)
- d. FM 63-21, *Main Support Battalion* (7 Aug 90)
- e. FM 63-23, *Aviation Support Battalion* (6 Jun 96)
- f. FM 100-5, *Operations* (14 Jun 93)
- g. Student Text 63-1, *Division and Corps Logistics* (1 Jul 96)
- f. Student Text 101-6, *G1/G4 Battle Book* (Jul 96)

LESSON GUIDE

1. INTRODUCTION

The Army's keystone warfighting manual, *FM 100-5*, states that "Logistics cannot win a war, but its absence or inadequacy can cause defeat." Unfortunately, when it comes to logistics, some of us can be so narrow-minded that the same raindrop wets both ears. This lesson provides the foundation needed to develop your concept of support for tactical operations in future lessons and practical exercises. You will look at how CSS is organized and how it performs the functions of logistics. You should already be familiar with most of this, but this lesson will review some of the main points to ensure that you have a good grasp of the basics before starting to plan logistics operations. Quite simply, you are going to look at how to be successful on the battlefield. *FM 100-5* states.

Successful tactical logistics provides the right support at the right time and place...

If you want to be successful on the battlefield, you have to recognize that right time and right place. To do that, you must first be able to "see the battlefield." However, there may be more than one point of view. The tactician sees all the killers: those forces and pieces of equipment that are at his disposal to destroy the enemy. The S3/G3 sees a highly trained combat force organized, equipped, and eager to rain death and destruction on any enemy foolish enough to dare challenge our obviously superior tactical acumen.

The logistician's view is a little different. The S4/G4 sees a great bulk of humanity screaming to be clothed, fed, paid, and promoted while firing up all the ammo that can be found, burning up prodigious amounts of fuel, and breaking every piece of equipment within easy reach.

Both views are somewhat flippant but both are also somewhat accurate. If the logistician doesn't support the force, the tactician won't be able to continue the battle.

2. STUDY QUESTIONS

The following study questions are provided for you to answer while you do your assigned readings. Answer them to the best of your ability and then proceed to the answer provided later in the lesson.

- a. Command and Control Explain the missions and organizations (Corps and Division Level) involved in providing logistics to a heavy division.

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b. Moving

(1) Differentiate between line haul distance versus local haul distance. Why is this an important concept?

(2) What are the 3 primary transportation function?

(3) Describe the different MODES OF transportation.

(4) What is movement management? Who gets involved in movement in management at brigade, division and corps?

(5) Describe the transportation request process diagrammed in chapter 4. ST 63-1. figure 4-1.

c. Arming

(1) Describe the difference between RSR and **CSR**. Who is involved in establishing each? Why'?

(2) Discuss the roles and responsibilities of the Division Ammunition Officer (DAO)

(3) Describe the capabilities of the ASPs and the various ATPs located in the division area. Who determines that unit(s) will utilize a particular ASP or ATP?

(4) What ammunition units normally provide support to a heavy division? Describe the capacities of these units.

d. Fueling

(1) Differentiate between the fuel storage capabilities of the FSB versus the MSB. Why do they have different capabilities? What's the main concern?

(2) How does the AVN BDE get its aviation fuel?

(3) Describe Refuel on the Move (ROM). Is a ROM kit required to conduct a ROM? When would you conduct a ROM? When would you not?

e. Fixing.

(1) Briefly describe the four levels of ground maintenance and the three levels of aviation maintenance.

(2) How is a division's ASL related to a combat unit's PLL? What unit is responsible for maintaining the ASL in a heavy division?

(3) Differentiate between **recovery** and **evacuation**. Who is responsible for each?

(4) Differentiate between **controlled exchange** and **cannibalization**

(5) What purpose do maintenance timelines serve? How are they used?

(6) Briefly describe the concept of BDAR.

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(7) Differentiate between a **UMCP** and a **MCP**. Who establishes each?

(8) Differentiate between **MSTs** and **SSTs**.

f. Manning.

(1) What are the manning functions? How does the manning function support the commander?

(2) Discuss the role of manning in the reconstitution process and describe the two reconstitution options.

g. Sustaining the Soldier and Their Systems.

(1) Personnel Service Support (PSS):

(a) What are the six Personnel Service Support functions? How do they support the commander, DA civilians, and the soldier's family?

(b) Briefly discuss the roles of resource management and finance to Army operations. What are the differences between the two?

(c) Describe the chaplain's role during war and OOTW.

(d) How does command information services assist the commander, DA civilians, and the soldier's family?

(e) What is the impact of legal service support on the human dimension of war?

(2) Combat Health Support (CHS): (NOTE: Combat Health Support (CHS) is the new term for what used to be Health Service Support)

(a) Describe the holding capability of the FSB and MSB medical companies

(b) What is the "rule of thumb" for who conducts medical evacuation?

(c) What echelons of medical treatment are available in the division? Briefly describe them.

(d) What echelons of medical treatment are available in the corps? Briefly describe them.

(e) Differentiate between the roles of the Division Surgeon versus the Division Medical Operations Center (DMOC).

(f) Describe how medical units in the division (including medical platoons of maneuver battalions) request and receive their Class VIII.

(g) Discuss the corps evacuation policy. Who establishes it? What does it mean? What is the impact of lengthening or shortening it?

(3) General Supply.

(a) Describe how water is produced, stored and distributed in a heavy division. What unit(s) are involved?

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(b) What is the difference between unit distribution, supply point distribution and throughput?

(3) Field Services.

(a) What field services do you feel are most critical to combat operations? Why? Briefly describe them.

(b) What capabilities exist in a heavy division with respect to each of these field services?

(c) How many mortuary affairs programs are there? Briefly describe each

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COMBAT OPERATIONS**Lesson 2. Logistics in U.S. Army Doctrine**

Appendix 1 to Advance Sheet, Lesson 2 Answers to Study Questions

1. The following answers to the study questions are provided to assist you in preparing for the end of course examination.
2. Study Question Answers and discussion.
 - a. Command and control. Explain the missions and organizations (Corps and Divisions Level) involved in proving logistics to a heavy division.

(1) The Division Support Command (DISCOM)

A division is capable of independent operations. That self-supporting capability is provided by a fixed CSS organization organic to the division- the Division Support Command (DISCOM) When it's said the DISCOM is "fixed," that means it has a set structure by table of organization and equipment (TOE) Quickly review what a DISCOM looks like.

The DISCOM provides all division and attached units with direct supply support (Classes I through IX), some medical support, transportation support, maintenance and supply, and maintenance management To help accomplish this mission, it has a Main Support Battalion (MSB) to support the division as a whole and three Forward Support Battalions (FSBs), one in direct support of each of the three maneuver brigades It also has an Aviation Support Battalion (ASB) to provide direct support the division's Aviation Brigade. You need to understand these units' missions and capabilities Each will be examined in detail during this lesson.

The MSB supports units in the division rear area and provides designated direct and reinforcing (backup) support to the FSBs. It operates from the division support area (DSA). During this lesson you will examine how each of the companies within the MSB is organized and how it operates.

The FSB has three companies that provide supply, maintenance, and medical direct support to a maneuver brigade There will be a FSB operating in each brigade area. The FSB is based in the brigade support area (BSA) and is the single point of contact for support of all divisional units operating in that brigade area. You should be familiar with brigade support areas from your reading

The ASB has three companies that provide supply, ground maintenance, and aircraft maintenance direct Support to the division's Aviation Brigade. Typically the ASB is based in the division rear area. The ASB commander may require additional support from a FSO or the MSB when support requirements are beyond the ASB's capability. A prime example of this is medical support since the ASB does not have any medical capability to support the Aviation Brigade.

Who selects where the BSA will be located?

The answer to this question may not be obvious because "selects" is probably a poor choice of words The brigade S4, as the staff planner, identifies an area from where the BSA can best support the brigade. The S4 coordinates with the FSB commander to ensure that the area adequately satisfies the physical and operational requirements of the FSB. Based on the tactical situation and the recommendation of the FSB commander and S4, the brigade S3. acting in the capacity of terrain manager, approves the BSA location

Remember, in addition to the aviation and maneuver brigades, there are several other units in the division au artillery brigade. a cavalry squadron, and an engineer brigade, just to mention a few.

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Elements of these units, if located within the brigade area, are also supported by that FSB. But without help, the FSB can't support more than its associated maneuver brigade. That's where the MSB comes in. The MSB operates from the division support area (DSA) and has the ability to support all the divisional units other than the aviation and maneuver brigades.

Who selects the location for the DSA?

This may not have been clear in your assigned readings. The G4, as the staff planner, coordinates with the DISCOM commander, who is in charge of the DSA, and with the G3 who is most aware of the tactical situation. Their coordinated recommendation is approved by the assistant division commander for support, (ADC-S), who is responsible for all operations in the division rear area. Although this process may be accomplished a little differently in every division, the philosophy and results are the same.

The MSB's organization is more robust than the FSB's. Like the FSB, the MSB has a medical company, but instead of a supply company, it has a supply and services company. Its maintenance capability is also greater, with three maintenance companies, a heavy, a light, and a missile support company. The MSB also has a transportation motor transport company.

There will normally be corps units operating in the division or even the brigade area. Who supports these corps units?

Both the FSB and the MSB are responsible for supporting all divisional forces operating within their assigned areas. The MSB, like the FSB, has a fixed capability. The support required by a corps unit exceeds the division's capabilities, therefore the corps must usually assist, either by augmenting the division or having a corps support group or other corps assets move forward into the division area to support those corps units. As you will soon see, there are some types of CSS that the corps provides to the division. Therefore, you can normally expect to see corps level CSS units operating from the DSA.

(2) The Corps Support Command (COSCOM)

The COSCOM is not a fixed organization like the DISCOM. It is organized depending on the number of soldiers to support, the number and types of weapon systems to repair, and the tonnage of supplies to issue and transport. The COSCOM provides direct and general supply support to nondivisional units and general supply support to divisions, separate brigades, and armored cavalry regiments. The COSCOM provides service support, including mortuary affairs, shower, laundry and clothing repair, and tactical post exchange. The COSCOM also provides direct support and aviation intermediate maintenance to nondivisional units; reinforcing direct support and aviation intermediate maintenance to divisions, separate brigades, and ACRs. The COSCOM provides the first hospitals for soldiers injured in the division.

The COSCOM consists of a headquarters and special troops battalion, functional control centers, a variable number of Corps Support Groups (CSGs), and a Medical Brigade. A transportation group may be attached if three functional transportation battalions are assigned or attached.

The functional control centers consist of the Corps Material Management Center (CMMC) and the Corps Movement Control Center (CMCC). Both of the centers implement COSCOM policies and directives. The CMMC centrally manages and controls supply and maintenance for the corps. The CMCC provides centralized movement management and highway regulation for the corps. The centers task and work lead COSCOM subordinate units.

The COSCOM task organizes CSGs to meet the needs of supported units. The forward CSGs employ in support of nondivisional units. The primary focus is on providing forward support to nondivisional units operating in the division area of operation. Forward CSGs are normally allocated on

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the basis of one CSG per division. Each forward CSG employs a tailored multifunctional Corps Support Battalion (CSB) in the division area to provide responsive support to forward-employed nondivisional forces. The CSB is task organized to provide DS-level supply, services, and maintenance support to corps forces operating in the division area. The remaining CSBs (multifunctional) of the forward CSG employ behind the division rear boundary providing GS and reinforcing DS to the division, any separate brigades, and the ACR if employed in their area of operation.

One rear CSG is allocated per COSCOM. The rear CSG provides corps wide support and reinforcing support to the forward CSGs. The rear CSG may consist of multifunctional CSBs, functional battalions, and a base support battalion. The rear CSG's CSBs provide DS level area support to units in or passing through their area of operation. The rear CSG's functional battalions provide corps wide general support to divisions, separate brigades, and ACRs as well as reinforcing support to the forward CSGs.

The COSCOM's Medical Brigade provides command, control, and administrative supervision of assigned and attached corps medical units. As a composite, the Medical Brigade provides treatment, hospitalization, evacuation, logistics, patient regulating, preventive medicine, psychiatric, laboratory, dental, and veterinary support to the corps. Medical assets are tasked organized under subordinate medical groups normally employed geographically in the corps rear area.

A Transportation Group may be attached to the COSCOM to provide command, control, and staff planning if three or more functional transportation battalions are included in the corps force structure.

TACTICAL LOGISTICS FUNCTIONS

Now that you have reviewed the DISCOM and COSCOM organizations and missions, take a look at logistics in general.

As you read, tactical logistics is categorized by function.

MANNING
 ARMING
 FUELING
 FIXING
 MOVING
 SUSTAINING soldiers and their systems

You may have seen a slightly different listing in other publications. Some of the other references you have for this subcourse were published before the 1993 edition of FM 100-5, so they don't reflect identical categories or groupings of activities. Don't let that confuse you; a rose by any other name still has thorns. Focus on what's involved in accomplishing that type of function. The first tactical logistics function discussed is moving since movement is inherent in all CSS functions.

b. Moving.

(1) *Differentiate between line haul distance versus local haul distance. Why is this an important concept?*

Line haul: Long trip over the road where driving time is high compared to loading/unloading time. Normally involves 1 round trip per shift of 10 hours, or 2 round trips per day.

Local haul: Short driving time in relation to loading/unloading time. Normally involves 2 trips per shift of 10 hours or 4 or more round trips per day.

Importance: In chapter 3 of ST 101-6, look up transportation truck company, (POL). Compare local haul capacity with line haul capacity (900,000 gal vs. 450,000) based on the use of 5,000 gallon.

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tankers. Example If the division's requirement is 600K per day and you are within LINE HAUL distance, somebody's going to run out of fuel before the end of the day

(2) What are the 3 primary transportation functions?

Mode operations: Moving people or materiel on a transportation conveyance. Five types: air, rail, road, water and pipeline.

NOTE: Although pipeline is one of the modes, it will not be discussed here because transporters don't plan or manage it.

Terminal operations: Shifting cargo from one mode to another mode (air to road, road to water, etc.) or from one type of transport within a mode to another within the transportation system. Two types of terminal operations: terminal service operations (Loading/unloading materiel at a port or LOTS (logistics over the shore) operations and terminal transfer operations (changing transportation modes at any site other than a seaport).

Movement management (see discussion question (4) below.)

(3) Describe the different MODES of transportation.

See MODE operations above.

(4) What is movement management? Who gets involved in movement management at brigade, division and corps?

Involves two major functions: **transportation movement**: Staff planning and coordination to get the right stuff to the right place at the right time in the most economical way

CORPS: the CMCC does it utilizing its MCTs/ATMCTs; **DIVISION**: the movement planner is the DTO with assistance from the MCO. DTO is the link between division and corps. The MCO manages the DISCOM's transportation assets (the TMT company of the MSB and allocated CSS air assets within the division) **BRIGADE**: the S 4 with help from the FSB

Second function is **highway regulation**. Basically, this is determining who can use the MSRs and when they can use them.

On corps controlled MSRs, the CMCC does it through its MRTs. On division MSRs, it's done by the DTO and on brigade MSRs, it's done by the brigade S-4.

(5) Describe the transportation request process diagrammed in chapter 4, ST 63-1, figure 4-1

(a) **BDE S 4/FSB SUPPORT OPERATIONS**: Brigade S4 passes request to the FSB support operations. FSB support operations passes request to the MCO who works for the DISCOM.

(b) **MCO OPERATIONS**: The MCO tasks the TMT company of the MSB if assets are available. If assets are not available, the MCO calls his supporting MCT and asks them for assistance. Since the MCT does not "OWN" the transportation assets, the MCT must go through the CSG(FWD) and CSB for actual tasking.

1. A Request would come from the FSB support operations by radio, landline, messenger, face to face, etc.

2. The MCO centrally controls division motor transport vehicle employment and coordinates priorities with the DTO.

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3. The MCO may have committal authority for aviation brigade assets if aircraft have been allocated by the G3 for CSS air movement operations.

4. If the requirement exceeds what the TMT company (and allocated aviation assets) can do, the MCO goes to the servicing MCT based on DTO guidance.

5. The MCO works for the DISCOM which makes commitment (MCO) and tasking (MSB) of the TMT company under the same command.

6. TMT company capabilities are listed in the G1/G4 battlebook. They do have trucks!

(c) MCT OPERATIONS: An MCT can commit transportation assets (companies) allocated to them by the corps MCC. Generally, an MCT will be collocated with a CSG(FWD) which provides backup support to a division. The transportation assets which the MCT commits belong to a CSB which in turn belongs to a CSG(FWD). MCTs work for the CMCC. Their commitments are fed to the CMCC so the CMCC can have total visibility over corps transportation assets.

(d) DTO OPERATIONS: DTO contacts the CMCC. The CMCC, having total visibility over corps transportation assets, can direct a different MCT to commit other corps trans assets to include trans assets from the CSG(REAR). If ALL corps transportation assets are tied up, the CMCC will contact the Theater Army Movement Control Center (TAMCC) and ask for their assets. The DTO normally works for the G4 because transportation is a logistics function and the G4 is the division's logistics planner. The G4 synchronizes all logistics planning in the division. The DTO is responsible for developing and implementing the division traffic control plan for both tactical and nontactical moves. He identifies primary and alternate MSRs and institutes traffic control measures. He is assisted by the MCO. Traffic on the division MSRs is regulated by the DTO with assistance from the division military police.

(e) CORPS MOVEMENT CONTROL CENTER OPERATIONS: CMCC can commit corps transportation assets through its subordinate MCI's. If the corps aviation brigade allocates aviation assets for CSS, the CMCC can also commit those assets. The CMCC coordinates transportation requests with its subordinate MCTs and also with the Corps Materiel Management Center (CMMC). There are different types and sizes of MCTs. They are organized to support anticipated workloads to match transportation requirements within a geographic area or within a specific site. The MCTs role is to expedite, coordinate, and monitor traffic moving through the transportation system. MCTs are generally employed 1 per CSG. Air Terminal MCTs (ATMCTs) are usually employed at the busiest airfield in the corps. MRTs are positioned along critical points on MSRs, APODs, SPODs, TTPs, terminal transfer locations and railheads to report traffic information.

(f) Regarding transportation assets typically found in a corps refer to the G1/G4 battlebook.

c. Arming.

(1) *Describe the difference between RSR and CSR. Who is involved in establishing each? Why?*

(a) RSR is what the operations planners want with no regard for restrictions. It's a wish list expressed in rounds per weapon per day or bulk. It's for a specified period of time or for a specific mission. Requests flow up through operations channels and it is consolidated at each level.

(b) CSR is the logistician's "reality check." It's the amount of ammo than can be allocated based on availability of ammo, storage facility restrictions, transportation restrictions, etc. It is Computed by the G4/S4. It flows down through logistics channels. It is expressed in rounds per weapon per day.

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- **RSR** is the ammo **requirement**, **CSR** is the **capability**.
- If CSR is <RSR, what can be done to lessen the impact?
 - Commanders can suballocate the CSR within their units.
 - Can substitute ammo types, e.g. HEAT rounds vice SABOT.

(2) *Discuss the roles and responsibilities of the Division Ammunition Officer (DAO).*

- Ammo manager for the division, Belongs to the DMMC.
- Consolidates and validates ammo requirements within the division.
- Assists in the development of Combat Configured Loads (CCLs). CCLs are configured in the CSA by the GS ammo company. They may be configured at the ASPs by the DS ammo company.
- Provides personnel to provide staff supervision at the divisional ATPs. They don't operate the ATP, but they're there to gain visibility of the ammo flow within the division.
- Recommends locations for divisional ATPs.
- Coordinates with counterpart at CMMC for flow of ammo into the division. (NOTE: THERE IS NO CORPS AMMO OFFICER. FUNCTION IS EMBEDDED IN THE CMMC AND COSCOM STAFF).

(3) *Describe the capabilities of the ASP's and the various ATP's located in the division area. who determines, what unit(s) will utilize a particular ASP or A ATP?*

- See G1/G4 battlebook for capabilities.
- DAO determines what unit(s) will utilize a particular ATP/ASP. For corps units operating in the division area, the DAO will coordinate this with the division and corps G3s.

(4) *What ammunition units normally provide support to a heavy division? Describe the capacities of these units.*

- Normally 1 DS ammo company is in direct support of each division. Capacities are in G1/G4 battlebook.
- Establishes **up to** 3 ASPs and 1 ATP in support of the division. Locations may or may not be in the division rear.
- If it's more advantageous to consolidate the 3 ASPs, that's what they'll do
- GS ammo support is provided by (you guessed it) a GS ammo company. The GS ammo company establishes a CSA in the corps rear.
- **(Capacity is in G1/G4 battlebook)**

d. Fueling.

(1) *Differentiate between the fuel storage capabilities of the FSB versus the MSB. Why do they have different capabilities. What's the main concern?*

- Capacity is in the G1/G4 battlebook.
- Main concern is **mobility**. FSBs have to be more mobile than the MSB so they can support the maneuver brigades which might be on the move.

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(2) How does the AVN BDE get its aviation fuel?

Aviation fuel is throughput from corps directly to the HQ & Supply Company of the division ASB. Note: FM 63-2 states different; however, refer to FM 63-23, chapter 6 for the most current information. Delivery of ground fuel for the AVN BDE is currently under review. Corps will either throughput it in 5000 gal tankers and leave the tankers at the ASB or they will throughput it and offload it into fuel bags on the ground at the ASB.

(3) Describe Refuel on the Move (ROM). Is a ROM kit required to conduct a ROM? When would you conduct a ROM? When would you not?

Like “hot refuel” for an aircraft. A group of vehicles pull up to fuel points and receive a specified amount of fuel (usually timed) and move out. If you have a ROM kit, you can use it, but a ROM kit is not required to conduct ROM. Can refuel directly from 5000 gallon tankers, 2500 gallon HEMTTs, or Tank and Pump Units (TPUs). In a perfect world, a division could conduct a ROM. Normally, however, corps assets are required to conduct a ROM. Due to the large risks involved, a ROM should be conducted **ONLY** if: area is secure, out of range of enemy direct support artillery, time is critical, and the vehicles **MUST** be refueled. **DON’T** conduct ROM if: Opposite of above.

e. Fixing.

(1) Briefly describe the four levels of ground maintenance and the three levels of aviation maintenance.

(a) There are four levels of ground maintenance: Unit level, Direct Support Maintenance (DSM), General Support Maintenance (GSM), and Depot maintenance.

Unit maintenance (10/20 level): Is performed by the equipment operator, crew and unit maintenance personnel. It is characterized by quick turnaround based on service and replacement JAW TM’s and the maintenance allocation chart (MAC). It includes vehicle recover) to and from a supporting maintenance activity. Equipment is returned to the user.

Direct Support Maintenance (DSM) (30 level): Is characterized by highly mobile, forward-oriented repair. Maintenance support teams from DS maintenance companies perform DS maintenance at the UMCPs or as far forward as practical. DSM units repair unserviceable modules, provide ASL repair parts, perform light body repair, technical assistance, calibration, and stock & issue the Operational Readiness Float (ORF). Equipment is repaired and returned to the user.

General Support Maintenance (40 level): Characterized by heavy body, hull, turret, and frame repair. The task is to repair and overhaul. Generally, GSM is performed outside the corps area in the Joint rear area/COMMZ. Equipment is repaired and returned to the supply system.

Depot maintenance (50 level): Provides reinforcing support to DSM and GSM maintenance units. The task is to overhaul, modernize or rebuild a piece of equipment. Equipment is repaired and returned to the supply system. Most depot maintenance is in CONUS. DS+ is a new program which brings depot level personnel into the DS unit to effect depot level repair.

(b) Three levels of aviation maintenance: Aviation Unit Maintenance (AVUM), Aviation Intermediate Maintenance (AVIM), and Depot maintenance.

AVUM maintenance is performed by the unit’s organic aircraft maintenance personnel. It consists primarily of preventive maintenance and routine inspections.

AVIM maintenance supports AVUM units and is characterized by more complex maintenance and repair tasks.

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DEPOT maintenance is not designed for field application. Most aviation depot maintenance is performed in CONUS. At this level, aircraft are repaired and returned to the supply system.

(2) How is a division's ASL related to a combat unit's PLL? What unit is responsible for maintaining the ASL in a heavy division?

- The Authorized Stockage List (ASL) must support the combat unit's Prescribed Load List (PLL). In other words, within the ASL, you must have all of the parts that are in the PLL's of the units you support. The ASL also includes some parts that DSM units will need to perform authorized DS level maintenance tasks.

- Quick Supply Store (QSS) is class IX maintained by DSM not authorized for PLL. Most are high usage, low dollar nuts and bolts.

- The light maintenance company of the MSB maintains the division's ASL. They maintain some 6,000 - 10,000 line items. Each of the forward maintenance companies stocks up to 3,000 of these parts.

(3) Differentiate between recovery and evacuation. Who is responsible for each?

- **Recovery** is a unit's responsibility, and usually managed at Bn (owning unit) level. Recovery is getting the vehicle from the point of breakdown to the Bn Unit Maintenance Collection Point (UMCP) or a designated Maintenance Collection Point (MCP). FSB maintenance company usually doesn't recover a broken vehicle as it only has 1 M88 recovery vehicle. Armor and Mech Infantry Bns each have 7 M88s (See summary of equipment, heavy division in the back of the G1/G4 battlebook, LIN NO R50681).

- **Evacuation** is from the point where the vehicle was recovered (UMCP or designated MCP) to a maintenance facility. Evacuation is the responsibility of a unit other than the owning unit. (More than likely, it will be a transportation unit, e.g. divisional TMT company or a corps heavy truck company). Evacuation requires coordination between trans/supply/maintenance units at various echelons and is coordinated by the DMMC.

(4) Differentiate between controlled substitution and cannibalization.

- Both are alternate sources of repair parts. The appropriate commander authorizes the use of controlled substitution (exchange) or cannibalization.

- **Controlled substitution** (exchange) is removing and exchanging of parts, components and assemblies from unserviceable, **economically repairable** equipment and immediately reusing them to restore a like item of equipment to combat readiness.

- **Cannibalization** is the authorized removal, under specific conditions, of serviceable and unserviceable parts, components and assemblies from material authorized for disposal.

(5) What purpose do maintenance timelines serve? How are they used?

- Use figure 7-1 in ST 63-1 to answer this question.
- It is the estimated amount of time a maintenance activity has to repair a piece of equipment.

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- Used to provide a commander flexibility. The trade-off is combat power for mobility. Equipment on hand yields greater combat power. However, the more broken equipment you hold, the less mobile are your maintenance facilities. Commanders don't want to burden their maintenance assets moving equipment requiring extended periods to repair.

(6) *Briefly describe the concept of BDAR.*

- BDAR is performed by the operator, crew and/or unit maintenance teams. It's done to get a broken piece of equipment back into the fight QUICKLY, but still ensuring personal safety. BDAR equals jury rigging. Use BDAR ONLY when standard maintenance procedures are impractical e.g. the bad guys are storming the fence and your machine gun is jammed. BDAR kits are available for many items and BDAR manuals exist for many items.

(7) *Differentiate between a UMCP and a MCP. Who establishes each?*

- A UMCP is set up by the owning unit. Generally, UMCPs are associated with a maneuver battalion and are established in the unit trains area (field or combat, depending on METT-T). A UMCP is a place on the ground where the battalion's broken equipment is "recovered" to and should be a short hauling distance. Unit maintenance personnel are there as well as any additional maintenance personnel sent by the DSM company (i.e. MST).

- An MCP is the maintenance collection point of ANY maintenance organization other than the owning unit, to include corps maintenance units. Equipment may be "evacuated" to an MCP (unless units are told to "recover" equipment to a designated MCP).

(8) *Differentiate between MSTs and SSTs.*

- SSTs are TOE based. The basis of allocation is generally one per maneuver Bn. SSTs are organic to divisional DSM units. SSTs are based on a type of equipment, e.g. an SST for tanks, an SST for Infantry Fighting Systems, etc.

- MSTs are task organized maintenance teams made up of components of two or more SSTs. e.g. when you mix tanks and Bradleys in a Bn task force, you need maintenance personnel for each system. Take a portion of a M1A1 SST and a portion of an M2 SST to make a MST to support all the equipment. MSTs help provide "30" level maintenance as far forward as possible, reduce turn around time, and can help weight the main effort.

f. Manning.

(1) *What are the manning functions? How does the manning function support the commander?*

- **Personnel readiness management (PRM):** From a commander's perspective, it describes a state of wartime preparedness. It involves analyzing current capabilities & projecting future requirements. It assists commander in properly allocating & assigning soldiers. The Personnel Accounting and Strength Reporting (PASR) plays a major role. **Personnel accounting** portion helps keep track of where soldiers are (by name) as their duty status changes. **Strength reporting** portion assists commander with gross numbers. **It tells him his fighting strength.** PASR is tied closely to PRM.

- **Replacement management:** Involves management of replacements from CONUS as well as RTDs and includes military and civilian personnel. Replacements can come as individuals or as squads, crews, or teams. Replacements support commander in the reconstitution process (See next discussion question) or filling critical individual shortages. Replacement managers also coordinate with

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logistics personnel to link up weapon systems with squads, crews, and teams as part of Weapon System Replacement Operations (WSRO).

- **Casualty operations management (COM):** COM records, reports and verifies casualty information. Commanders use casualty information in determining COAs, estimating and assessing fighting strength before, during and after and for establishing priorities for incoming replacements. COM supports commander by ensuring soldiers are properly identified, handled and cared for. COM plays a major role in supporting the “national will.” Family members know their sons/daughters are being taken care of.

(2) *Discuss the role of manning in the reconstitution process and describe the two reconstitution options.*

- Prime players are the personnel readiness (PR) managers and the replacement managers. PR managers assign replacements based on cdr’s priorities. Personnel accounting and strength reporting (PASR) system tells cdrs exactly where soldiers are (PDY, MIA, WIA, etc.) and lets them know their combat power (e.g. 80% strength, etc.). Replacement managers receive, account for, process and coordinate delivery of replacements IAW cdr’s priorities.

Replacements for reconstitution can be:

- a) individuals
- b) squad/team/crew
- c) platoons
- d) whole companies.

Two options of reconstitution are reorganization and regeneration.

- **Reorganization** is action to shift resources within a degraded unit to increase its combat effectiveness. It can be immediate or deliberate and is exercised by tactical commanders at all levels. Replacements are **primarily** in the form of individuals.

- **Regeneration** is rebuilding a unit. Replacements can be any of the 4 options listed earlier. Regeneration requires **major** coordination with the G3, G4, medical units (for treatment of casualties) and chaplain support. It requires the support of higher echelons, usually the commander two levels up. Due to the intense nature of regeneration, it is usually conducted in the corps rear area.

- In both cases, DS replacement companies may have to coordinate any or all of the following: trans to the unit, any required training is coordinated w/G3, any required equipment is coordinated w/G4.

g. Sustaining Soldiers and Their Systems.

(1) PSS:

(a) *What are the six Personnel Service Support functions? How do they support the commander, DA civilians, and the soldier's family?*

NOTE: This can be confusing. Refer to figure 9-1 in ST 63-1 to get a picture of how all this ties up.

Personnel services (8 subcomponents):

- personnel readiness management
- personnel accounting and strength reporting (PASR)
- casualty operations management
- replacement management
- personnel information management
- postal operations management

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- morale, welfare, and recreation and community support
- essential personnel services
- Resource management.
- Finance set-vices.
- Chaplaincy activities.
- Command information services.
- Legal service support.

(b) *Briefly discuss the roles of resource management and finance to Army operations. What are the differences between the two?*

- Resource Management: Certifies funds, allocates funds to subordinate headquarters, prepares budgets, conducts reviews and analyses of pro&m execution (they check to see if the \$ is being spent efficiently and effectively), and they MAY manage manpower and force structure.

- Finance: Accounts for funds, prepares financial managerial reports, pays bills, pays soldiers, pays civilians, pays contracts (HNS fits in this category), funds class A agents (gives \$ to class A agents), and manages foreign currency.

(c) *Describe the chaplain's main role during war and OOTW.*

They're really the same. Basically concerned with 3 things: Nurturing the living, caring for the wounded and honoring the dead. Depending on the situation. these 3 functions are best carried out before, during and after battle or MOOTW respectively. Chaplains also provide denominational support to units on an area basis and counseling to families. civilians & soldiers.

(d) *How does command information services assist the commander, DA civilians and the soldier's family?*

Primary purpose is to motivate soldiers by keeping them informed and emphasizing their role in the mission. Also involves disseminating information as appropriate to family members and Department of the Army civilians. It strengthens morale and public confidence by providing mission information to all.

(c) *What is the impact of legal service support on the human dimension of war?*

NOTE: The human dimension of war is discussed in FM 100-5, pp. 14-1-14-3

- SJA's battlefield missions include:
 - Legal assistance (wills, power of attorney, etc.).
 - Providing guidance on drafting the Rules of Engagement (ROE).
 - Contract law (Is what the commander wants to do legal?).
 - Giving UCMJ advice.
 - Ensuring compliance with and training on the DOD Law of War Program and war trophies.

(2) Combat Health Support (CHS):

(a) *Describe the holding capability of the FSB and MSB medical companies.*

- They can all hold up to 40 patients that are expected to RTD within 72 hrs. If patients cannot RTD within 72 hrs, they must be evacuated to a corps hospital (MASH or CSH). NOTE: The MSB medical company can reinforce any or all of the FSB medical companies if needed.

(b) *What is the "rule of thumb" for who conducts medical evacuation?*

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Higher evacuates from lower. For example, the ambulances from the FSB med company normally collocate at the BASs and evacuate patients from the BASs to the FSB med company. Likewise, corps ambulances (gnd and air) will collocate with the FSB/MSB med companies to evacuate patients from there to corps hospitals.

(c) *What echelons of medical treatment are available in the division? Briefly describe them.* NOTE: Refer to figure 9-3 in ST 63-1 to answer the nest two questions.

- Only echelons I and II are available in the division.

Echelon I: Immediate lifesaving measures (see nest bullet). DNBI prevention, Combat Stress Control (CSC) preventive measures, casualty collection, and evacuation from supported areas. Treatment emphasis is to stabilize and prepare the patient for evacuation to nest echelon. Primarily, maintaining an airway, stopping major bleeding, preventing shock, protecting wounds, and immobilizing fractures. Provided by: self. buddy. combat lifesaver. combat medic or the treatment section of the BAS.

Echelon II: Includes evacuation of patients from echelon I facilities (BASs), and providing CHS on an area basis to units w/o organic medical capability (e.g. air defense units, signal units, aviation units). Duplicates treatment available at echelon I AND expands available services by adding dental, lab, X-ray, and patient holding capability (40 cots previously mentioned). It is provided by the treatment platoons of the forward, main or area support med companies.

(d) *What echelons of medical treatment are available in the corps? Briefly describe them.*

Echelons I, II, and III are available in the corps. Echelons I and II were already discussed. NOTE: Each echelon duplicates the treatment capability of every echelon below it but adds additional capabilities not available at the lower levels.

Echelon III: Includes evacuating patients from echelon I and II facilities, providing care for all categories of casualties in a Medical Treatment Facility (MTF) with the proper staff and equipment (e.g. send surgical patients to a MASH Send psychiatric patients to a CSH. Patients receive (or can receive) resuscitative surgery at echelon III facilities. The MASH and the CSH are the only echelon III facilities and the only corps (CZ) hospitals.

(e) *Differentiate between the roles of the Division Surgeon versus the Division Medical Operations Center (DMOC).*

DIVISION SURGEON	DMOC
Special staff officer to division commander	DMOC staff responsible to DISCOM cdr for staff supervision of HSS within the DISCOM
Normally works under the staff supervision of the division chief of staff	Coordinates HSS according to the technical parameters established by the div surgeon
Primary coordinating responsibility with G1	DMOC staff assists div surgeon in planning and accomplishing HSS in the division
Duties largely administrative: Has staff and technical supervision over division medical units and activities.	Consists of 4 branches: Med ops, med materiel mgmt, patient disposition & reports, and med commo
Advises division commander on all medical matters	N/A

(f) *Describe how medical units in the division (including medical platoons of maneuver battalions) request and receive their Class VIII.*

- Fwd support med company resupplies BASs using supply point distribution. The med platoon leaders of the maneuver bns coordinate it. NOTE The preferred method for resupplying

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ALL Class VIII is using vehicles OTHER than ambulances. However, backhaul can be used if necessary. (Backhaul definition. An ambulance drops off a patient, picks up medical supplies and returns to treatment facility that requested the supplies).

- Division Medical Supply Office (DMSO) resupplies FSB and MSB medical companies. DMSO is organic to the MSB med company. Requests can be formal or informal, written or transmitted via FM. Whatever works! A good DMSO will anticipate usage and “push” Class VIII forward at regular intervals. DMSO is resupplied from the Med Log Bn (Fwd) which belongs to the Med Bde (part of the COSCOM).

(g) *Discuss the corps evacuation policy. Who establishes it? What does it mean? What is the impact of lengthening or shortening it?*

It's the max time (expressed in days) a patient can stay in a corps hospital (MASH or CSH). NOTE: Time starts when a patient is admitted to a corps hospital. It does NOT include the time the patient may have already spent in a division treatment facility. As soon as it has been determined that a patient cannot RTD within the specified evacuation policy, he/she is evacuated further. This keeps beds available far forward. Because it impacts on COMMZ level hospitals, theater commander establishes it with advice from theater surgeon and the corps commander (who gets advice from the corps surgeon). For the impact of shortening or lengthening policy: See ST 63-1, p. 9-18.

g. General Supply

(1) *Describe how water is produced, stored and distributed in a heavy division. What unit(s) are involved?*

NOTE: Answer is kind of “hidden” in ST 63-1 on p. 9-38. “The division MSB water section establishes water points in the DSA and each BSA.”

- S&S company water section has 10X600 GPH ROWPUs (these MAKE the purified water) 30 X 3,000 gal onion tanks (90,000 gal) (obviously for STORAGE of water). 2 X 3,000 gal SMFTs (semi-trailer mounted fabric tank) (,000 gal) (for water resupply in areas where there is no water source), and 3 X FAWPSSs (forward area water point supply system) (9,000 gal) (3,000 gal per brigade).

- The water section of the S&S company of the MSB can establish up to 5 water purification points in a division; one per brigade and up to two in the division rear. The ones in the division rear do not have the FAWPSS.

(2) *What is the difference between unit distribution, supply point distribution and throughput?*
Refer to p. 9-21 ST 63-1.

- **Unit distribution:** Somebody brings the supplies to me using their trucks. (Dominoes pizza)

- **Supply point distribution:** I have to go to the supply point to pick up the supplies using my trucks. (Little Caesar's pizza)

- **Throughput:** (Yes, this is now a bonafide method of supply distribution) Nothing more than bypassing an intermediate supply source Examples are in ST 63-1. Not a normal method of supply distribution.

h. Field Services.

(1) *What field services do you feel are most critical to combat operations? Why? Briefly describe them.*

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There is no right or wrong answer. Bottom line: The commander determines which field services are most important. There are six field services:

- Field feeding (includes bakery) Chow. Food. Vittles. Grub. Groceries. The stuff you eat. MREs. T-rations. Class I.
- Mortuary affairs: May be considered as one of the most important of the field services. Has three subprograms: current death, graves registration, and concurrent return. Will discuss Inter.
- Airdrop: This field service is primarily used when initially inserting a unit into an operational area. However, it can be used in emergencies or when other resupply means are not an option.
- Laundry and shower.
- Clothing and light textile repair: Light textile = tent repair.
- Water purification: In a heavy division, this function is provided by the S & S company. (previously covered under General Supply). In an arid environment, they would have to be augmented by corps water purification detachments.

(2) *What capabilities exist in a heavy division with respect to each of these field services?*

- Field feeding: Virtually every battalion sized unit in a division has its own organic food service personnel and/or equipment.
- Mortuary affairs: The S & S company of the MSB and each of the FSB supply companies have 1 (one) mortuary affairs NCO (4 total in the division). So....the division relies heavily on corps to establish and operate mortuary affairs collection points throughout the division.
- Airdrop: Zero capability! The only division with organic airdrop assets is the airborne division. All other divisions rely completely on corps to provide this service.
- Laundry and shower: Zero capability! **IF** it is available in the division, corps units provide it.
- Clothing and light textile repair: Zero capability! Same as above
- Water purification: Don't get confused. When discussing this under general supply, the intent is to address the water **supply** function. This is the field service of purification. Nevertheless, the purification capability was previously discussed. Division can purify 24,000 gal/day from fresh water or 16,000 gal/day from salt water.

(3) *How many mortuary affairs programs are there? Briefly describe each.* NOTE: The term Mortuary Affairs has replaced the term GGREG (Graves Registration).

- **Current death:** This is the peacetime system. It provides mortuary supplies and services to permanently dispose of remains and personal effects. It **may** continue in peacetime; METT-T dependent.
- **Graves registration:** Includes search, recovery, initial ID, and evacuation of remains for **temporary** interment in theater. After hostilities cease, the remains are exhumed and returned to CONUS or other next of kin designated location for permanent disposition.
- **Concurrent return:** Includes search, recovery, and evacuation of remains to a mortuary. Provides for positive ID, embalming, and disposition of remains as the next of kin directs.

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Also handles and disposes of personal effects. Primarily, used during emergencies or major military operations when METT-T permits.

NOTE: Transportation of remains is a major consideration. There are no transportation assets specifically for transporting remains. Units will have to be innovative in solving this problem.

CONCLUSION

The task of planning logistics operations is analogous to an iceberg. The great majority of that iceberg consists of computing requirements, identifying capabilities and solving any shortfalls that might exist between the two. In future lessons we will discuss how to compute requirements, identifying capabilities and solving any logistics shortfalls that might exist. During this lesson you have only scratched the surface of the ice and your feet are barely damp. But don't despair. Later in this subcourse and during future subcourses, you'll get a chance to snorkel around the iceberg's edge.

You've covered a lot of material during this lesson. The knowledge you've acquired will serve as the foundation on which you will build in future lessons.

COMBAT OPERATIONS**Lesson 3. Air-Ground Operations**

Advance Sheet

SCOPE

During Lesson 3, you will examine the command, control, and employment of air power during Army combat operations. Study questions cover the air- ground operations system (AGOS).

ENABLING LEARNING OBJECTIVES

A. 12 TASK: Explain United States Air Force support of ground operations at the tactical and operational levels of war.

CONDITION: Individually, given assigned readings, a written requirement, with references.

STANDARD: The explanation must address -

- The process by which air assets are *apportioned, allocated, and distributed*.
- The structure of the theater air control system/Army air -ground operations system from battalion through corps levels.
- The differences between preplanned and immediate ir missions.
- The role of the battlefield coordination detachment.

LEVEL: Comprehension.

PJE Phase I Objective Numbers: 1a, 1b, 1e, 2a, and 5c.

ISSUE MATERIAL

1. ADVANCE ISSUE

None

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ASSIGNMENT

1. STUDY REQUIREMENT

First requirement. From your study assignment, you should understand the US contingency theater air control system (TACS); the interface between the battlefield coordination detachment (BCD) and the USAF air operations center (AOC); how air support is apportioned, allocated, and distributed; and the structure and methods by which air support is requested and subsequently executed in support of ground maneuver operations.

a. Read.

- (1) Advance sheet and appendix I to advance sheet, lesson 3.

b. Study Topics.

- (1) Define the steps of the apportionment, allocation, and distribution process
- (2) Define the role of the Joint Force Commander, the Joint Force Air Component Commander, and the Land Component Commander in determining and approving the above steps.
- (3) Define the two types of close air support (preplanned and immediate) and explain the differences between the two types.
- (4) Define the two types of preplanned air support (scheduled and on-call) and explain the advantages and disadvantages of each type.

COMBAT OPERATIONS

Lesson 3. Air-Ground Operations

Appendix 1 to Advance Sheet, Lesson 3. Theater Air Control System

1. GENERAL

Air apportionment, allocation, and distribution are parts of the process used to determine the employment priorities and structure of the air effort in support of theater objectives.

2. APPORTIONMENT AND ALLOCATION (ECHELONS ABOVE CORPS)

a. Air apportionment.

Air apportionment, the responsibility of the Joint Force Commander (JFC), is the determination of the total expected air effort by percentage and/or priority that will be devoted to the various air operations or geographic areas. The process starts when the JFC gives guidance and priorities for upcoming planning and operations. The Joint Force Air Component Commander (JFACC) develops an air apportionment recommendation during consultation with the Land Component Commander (LCC) and the naval component commander (as appropriate). During consultation, the other component commanders are advised of the capability and availability of air assets to conduct operations such as counterair, close air support (CAS), air interdiction (AI), surveillance and reconnaissance (S&R), theater airlift, strategic attack (SA), maritime support (MS), and special operations (SO). They are also advised of national assets that are available to support theater operations. The JFC then approves or modifies the apportionment recommendation as necessary.

(1) Example of *daily* apportionment by *percentage*.

<i>Apportionment</i>	
<i>Type of Mission</i>	<i>Percent</i>
Counterair	50
Air interdiction	25
Close air support	25

(2) Example of daily apportionment by *priority*. (In this example, counterair is the first priority, interdiction the second, and CAS the third.) "I want to ensure air superiority across the region to prevent enemy air forces from disrupting our defensive preparations. I don't want the enemy hitting us at full strength, so use air effectively to slow their advance and degrade the first echelon. Ensure our front line forces have adequate air support when we do contact enemy forces."

b. Allocation.

(1) Definition. The next step in the process, allocation, is the translation of the apportionment decision into the number of sorties, by aircraft type and unit, for each mission type. This

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process is accomplished for the JFACC at his AOC. It begins with a numerical projection of the total available sorties. The apportionment percentages (priority) are applied to the pool of available sorties to arrive at allocation. The final product is a breakout of the number of sorties to be flown by mission, aircraft type, and unit. A simplistic example of this process using the apportionment above is shown below:

(2) *Allocation process.*

(a) *Determine sortie availability.*

Unit	Aircraft type	Number of aircraft	Sorties per aircraft/day	Total sorties
11 FW	F-15E	24	2.0	48
23 Wing	F-16	18	2.5	45
	A-10	18	3.0	54
366 Wing	F-15C	18	2.5	45
	F-15E	24	2.0	48
	F-16	24	2.5	60
Total		126		300

NOTE: Sorties per day are calculated based on maintenance constraints and distance of aircraft from the primary target areas.

(b) *Assign missions to aircraft type and unit of assignment.*

Type mission	Sorties	Aircraft types	Unit allocation
Counterair	150	45/F-15C 48/F-15E 57/F-16	366 Wing
Air interdiction	75	3/F-16 27/F-16 45/F-15E	366 Wing 23 Wing 11 FW
Close air support	75	54/A-10 3/F-15E 18/F-16	23 Wing 11 FW 23 Wing

3. DISTRIBUTION (CORPS AND BELOW)

Distribution applies to that portion of the air effort that the JFC gives to the LCC to support land operations. Close air support is normally the affected mission. The LCC distributes air support to

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subordinate units to augment their organic firepower. The purpose is to decrease the response time of air assets. Direction and control of this air effort are accomplished through the air support operations center (ASOC). An ASOC is located at each corps main CP. The ASOC receives, plans, and coordinates air requests for its particular corps, directs the employment of the air effort allocated to the corps, and acts as an advisory agency to the corps commander on the feasibility of requests for air support.

Since CAS sorties are distributed to the various corps by the LCC, the ASOC normally has control authority for CAS sorties allocated to the corps. When a particular ASOC has been depleted of its allotted CAS sorties, the ASOC will normally go through Army channels to request a redistribution of sorties from another corps.

4. THEATER AIR CONTROL SYSTEM

a. The JFACC exercises control over assigned and attached forces through the TACS, the Air Force command, control, and communications (C³) architecture that plans, coordinates, and executes the JFACC's missions.

b. The AOC is the JFACC's Headquarters (HQ). It is responsible for the centralized planning, direction, control, and coordination of theater air operations. The AOC develops the apportionment recommendation and conducts the allocation process for the ACC. It also formulates the daily air operations combat plan and tasks units to execute the plan via the air tasking order (ATO). The LCC's liaison element at the AOC is the battlefield coordination detachment (BCD).

c. The control and reporting center (CRC), subordinate to the AOC, controls and executes the aerospace control mission for the JFACC. The JFACC is normally the airspace control authority (ACA). The airspace control plan is executed by the CRC, which serves as the interface between land and airborne air defense systems. The CRC executes its mission through a network of subordinate radar elements (control and reporting elements). These surface-based systems are normally augmented by radar information from the Airborne Warning and Control System (AWACS).

d. The ASOC is the primary control agency component of the TACS for the execution of CAS. Collocated with the senior Army echelon fire support element (FSE), (normally the corps FSE). The ASOC coordinates and directs CAS in support of Army operations. In a multicorps environment, there will normally be one ASOC with each corps, reporting individually to the AOC. The AOC may grant the ASOC control (launch or divert authority) of missions designated to it on the ATO.

e. The tactical air control party (TACP) is subordinate to the ASOC and provides the air interface with land forces down to the battalion level.

5. CLOSE AIR SUPPORT PLANNING AND EXECUTION

Doctrinally, there are two types of CAS: preplanned (requirements identified early enough to be included in the joint ATO) and immediate (requirements identified once the battle is joined, too late to be included in the joint ATO).

a. *Preplanned.* Preplanned CAS requests are categorized as either scheduled or on-call. Scheduled requests require the requesting maneuver unit to identify the target and the desired TOT well in advance. Scheduled requests offer greater opportunity for effective coordination and provide a higher likelihood that

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the aircraft will have the proper weapons load for the assigned targets. On-call requests identify an anticipated requirement for CAS to be available during a period of time, with the exact time and place to be coordinated as the battle develops. On-call CAS allows the requesting commander to indicate a timeframe, probable target type, and place where the need for CAS is most likely. On-call aircraft are configured with the proper ordnance for anticipated targets (e.g., anti-armor) and maintain an alert status for a specified period of time.

The important thing in preplanned CAS is for requesting forces to forward their requests as soon as they anticipate the need for CAS and then regularly update and refine their requests as the time approaches.

Information such as potential targets, desired effects, timing, and priority are needed to prepare the joint ATO. Air liaison officers (ALOs) and G3/S3s at all echelons must ensure that such information is forwarded through the FSE as soon as foreseen by their respective echelon's planners and commanders.

Requests for preplanned CAS missions are submitted to the fire support coordination element at each echelon of command. The commanders, ALO, fire support coordination center (FSCC)/FSE, and G3/S3 at each echelon evaluate requests; coordinate requirements, such as airspace, suppression of enemy air defenses (SEAD), and intelligence; consolidate requests and requirements; and assign a priority and precedence to those requests they approve. The G3/S3 then forwards approved requests through component communications nets to the next higher echelon. All requests are consolidated and prioritized either by the FSCC/FSE or the BCD.

After approval, these requests become the LCC's requests for CAS, which are then passed to the AOC for planning and execution in the joint ATO. If CAS requests exceed the component's organic capability, the requests for additional CAS are forwarded to the AOC via the air support request (AIRSUPREQ) message.

At the AOC, the JFACC/JFC staff reviews the requests, matches them in priority order against the JFC's air apportionment decision, and fills those requests with the sorties available for the air apportionment guidance.

If CAS requests exceed the air apportionment, the JFACC/JFC staff must ask the JFC to modify the air apportionment decision, request components to allocate more joint CAS sorties, or deny the requests exceeding the air apportionment for CAS.

Preplanned on-call CAS can be made more responsive in a number of ways. The first way is to place aircraft on airborne alert. In this case, aircraft could be available in the target area in a matter of minutes; however, the aircraft may not have the best ordnance for the mission. Assets on airborne alert will have limited station time; air assets could be squandered if they are on the way home for fuel when they are needed.

Ground alert is also a method that can be used to decrease the response time of air assets. Normally, air units will be given a time block to be on alert status. For example, a crew tasked with a 5-minute alert would be in the aircraft with the engines running, waiting to taxi for takeoff. Like airborne alert, the ordnance on the aircraft may not be optimized for the target, and the sorties may be lost if they are not used during the tasked time block.

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b. *Immediate.* Because immediate requests respond to developments on a dynamic battlefield, they cannot be identified early enough to allow detailed coordination and planning, which may preclude tailored ordnance loads. Once a particular corps depletes its scheduled and on-call CAS, the corps ALO advises the corps G3/S3. At this point, immediate CAS can be provided two ways. First, it may be provided by diverting CAS under the control of a particular ASOC to support the ASOC with the immediate need. In this case, the LCC simply redistributes CAS sorties already allocated to him.

Second, it may be provided by diverting aircraft. In this case, a flight with another mission is diverted by the AOC to fill the immediate CAS requirement. Some of the problems with airborne diversion include the following: the original target for the aircraft will not be struck; the aircraft may not have the correct ordnance load or loiter fuel; and most importantly, the crews may be unfamiliar with the target area and present ground situation.

Immediate requests are forwarded to the appropriate command post by the most rapid means available. Requests are broadcast directly from the TACP to the ASOC/AOC using the Air Force Air Request Net (AFARN). The TACP at each intermediate headquarters monitors the request and informs the G3/S3 air, the ALO, and the fire support coordinator. After considering the commander's intent and whether organic assets are available, appropriate or sufficient to fulfill the request, they approve or deny the request. Silence by intermediate headquarters indicates approval.

Normally, if intermediate land force levels of command do not disapprove an immediate air request, it will be approved after a fixed period of time (that period is theater specific). Intermediate levels can also approve immediate requests prior to the expiration of the coordination period. While this coordination is in progress, the ACC alerts units to begin planning the mission. This is done to avoid squandering that planning time.

6. AIR INTERDICTION PLANNING AND EXECUTION

Air interdiction targeting is of great importance to the entire joint force. To determine overall theater interdiction priorities, the JFC normally establishes a joint targeting coordination board (JTCB). This board may be chaired by the JFC or his delegate. The JTCB will normally deal with the coordination of target information, provide target guidance and priorities, and prepare and refine joint target lists. It normally will not establish target sets, targets, and specific target priorities. Each component will forward ranked target nominations to the JTCB.

Once the interdiction priorities are established, the AOC plans the package types (the number and types of aircraft and weapons) needed to strike those targets. Targets are struck in order of priority as long as they can be supported. For example, if the first five priority targets require all available force enhancement assets (tankers, electronic warfare (EW), etc) to accomplish the mission, the remaining attack assets may not be able to service the sixth target. Rather than hold remaining attack assets in reserve, they may be used against the 10th target. It is the JFACC who has the expertise and planning staff to make those kinds of decisions.

7. SYNCHRONIZATION

The key to synchronization for Army planners at brigade through corps levels is to understand the various timelines for air support requests. Generally, air support requests are due to the JFACC between

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24 and 28 hours prior to the beginning of a particular ATO day (number of hours may vary by theater), so planning for CAS, AI and S&R must be done even earlier. Precise target information for CAS may not always be available at this time. Corps planners, though, should be able to determine the number of CAS sorties required during the 24-hour period covered by a particular ATO. Because the tactical situation is fluid, army planners must refine target information as it becomes available. This information should be passed to the BCD to change the ATO.

COMBAT OPERATIONS**Lesson 4. Synchronization Prerequisites for
Corps and Division Operations**

Advance Sheet, Lesson 4

SCOPE

During this lesson you will set the foundation and framework for planning and conducting corps and division operations. You will analyze current doctrine and apply prerequisites for synchronization through interrelating the battlefield operating systems (BOSS) within the battlefield framework and organization.

This lesson will cover the role that the corps plays as the largest Army tactical unit and the instrument by which higher levels of command conduct operations at the operational level. In addition, it will highlight other roles that will be further explored in later CGSC instruction. These include the corps as a tailored force employed in force projection operations that are joint and often multinational in nature and cross the full range of military operations; its deployment to a theater to fight as a component of a larger ground force; and its acting as a force provider for other headquarters tasked to control an operation.

You will then be introduced to the main focus of the remainder of lesson 4 - the corps role in planning and conducting simultaneous operations in depth that synchronize one or more collateral operation(s) with the main effort. You will review key doctrinal concepts on close and deep operations that will be 'analyzed in depth: battlefield framework and organization, forms of maneuver; fundamentals of offensive operations; forms of defense, retrograde operations; reconnaissance and security; use of reserves, and the commander's ability to control the tempo of the close fight by directing deep operations against uncommitted enemy forces and targeting using decide-detect-deliver-assess (D³A) methodology.

ENABLING LEARNING OBJECTIVES

A.07 TASK: Explain the six tactical logistical functions and the five logistics characteristics.

CONDITION: Individually, given assigned readings, a written requirement, with references

STANDARD: The explanation must ---

- Be IAW FM 100-5 and FM 71-100.
- Address tactical and operational level offensive, defensive, and retrograde operations.

LEVEL: Comprehension.

PJE Phase I Objective Numbers: 1a and 1e

A.08 TASK: Interrelate the battlefield framework and the organization of the corps and division

CONDITION: Individually, given assigned readings, a written requirement, with references.

STANDARD: The interrelationship must -

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- Be IAW FM 71-100, FM 100-5. and FM 100-15
- Address area of operations, area of interest, battlespace, and battlefield organization in the deep, close, and rear operations.
- Address major subordinate commands (MSCs) of corps and division.

LEVEL: Comprehension.

PJE Phase I Objective Numbers: 1a, 1b.

A.09 TASK: Apply synchronization prerequisites for corps operations.

CONDITION: Individually, given assigned readings, a written requirement, with references.

STANDARD: The application must -

- Be IAW FM 63-3, FM 100-5, FM 100-15, and ST 100-3
- Include the organization, role, functions, capabilities, optimum positioning and limitations of the United States Army corps assets in combat operations.
- Include how corps structure the battlefield and synchronize the battlefield operating systems in the deep, close, and rear operations.
- Include how corps phase operations and the planning considerations for offensive and defensive operations.

LEVEL: Comprehension.

PJE Phase I Objective Number: 1a, 1b, 2a, and 5b.

A.10 TASK: Apply synchronization prerequisites for division operations.

CONDITION: Individually, given assigned readings, a written requirement, with references.

STANDARD: The application must -

- Be IAW ST 63-1, FM 71-100, and ST 100-3
- Include the organization, role, functions, capabilities, optimum positioning and limitations the United States Army division assets in combat operations.
- Include how divisions structure the battlefield and synchronize the battlefield operating systems in the deep, close, and rear operations.
- Explain the planning considerations for offensive and defensive operations

LEVEL: Comprehension

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PJE Phase I Objective Number: 1a.

- A.11 TASK: Explain decide, detect, deliver, and assess (D3A) targeting methodology, in corps and division operations.

CONDITION: Individually, given assigned readings, a written requirement, with references

STANDARD: The explanation must -

- Be IAW FM 6-20-10, FM 100-15, and ST 100-3.
- Include the organization, role, functions, capabilities, optimum positioning and limitations of the United States Army division assets in combat operations.
- Include decide, detect, deliver, and assess phases as they apply to deep, close, and rear operations.

LEVEL: Comprehension.

PJE Phase I Objective Number: 5b.

ISSUE MATERIAL

I. ADVANCE ISSUE:

None

ASSIGNMENT

I. REQUIREMENTS

a. *First requirement:* Analyze corps and division operations, including the corps role in operations, the battlefield framework and organization. and close and deep operations.

(1) *Read.*

(a) Advance sheet, lesson 4

(b) FM 100-5, pp 2-0 through 2-3 (Technology), pp 2-12 (Combat Functions) through 2-15 (Battle Command). pp 6-11 (The Battlefield Framework) through 6-15 (Rear Operations), 7-0 and 7-1 (Purpose of the Offensive), and 9-0 and 9-1 (the Purpose of the Defense).

(c) FM 100-15, pp 1-1 through 1-11 (Personnel Group), pp 2-1 through 2-8 (Rear Operations), 5-1 (Fundamentals of Corps Offensive Operations), pp 5-12 through 5-16 (Rear Operations), p 6-1 (Fundamentals of Corps Defensive Operations), and pp 6-3 (Planning Corps Defensive Ops) through 6-9 (Rear Operations).

(d) FM 71-100, pp 1-1 through 1-3.

(e) FM 6-20-10, p vii and chapter 2.

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- (f) ST 101-6, Chapter 1 Appendix C and F.
- (g) Appendix 1 and 2 to Advance Sheet, Lesson 4.
- (2) *Review.*
 - (a) ST 63-1, Chapter 1.
 - (b) ST 101-6, pp 4-14 through 4-17 and pp 4-29 through 4-32.
- (3) *Study Questions.* Answer the following questions.
 - (a) Define the corps role in operations.
 - (b) Define the role of the division as part of a corps. What other roles can the division play?
 - (c) Describe the battlefield framework and organization. What is its purpose?
 - (d) Explain how area of operations (AO), area of interest (AI), battlespace, and battlefield organization interrelate.
 - (e) Describe the five complementary elements of the battlefield framework for corps and division offensive and defensive operations.
 - (f) Describe the purpose of close operations.
 - (g) Describe the purpose of offensive operations.
 - (h) Describe the purpose of deep operations.
 - (i) Explain how the corps commander might control the tempo of the fight through deep operations.
 - (i) Explain D³A targeting methodology.

b. Second requirement: Prepare to analyze concepts of corps and division operations by determining optimum positioning of corps assets and interrelating the BOSs during deep and close operations.

- (1) *Read.*
 - (a) FM 100-5, pp 7-3 (Forms of Tactical Offense) through 7-12 (Frontal Attack), and pp 9-2 (Defensive Patterns) through 9-4 (Area Defense).
 - (b) FM 100-15, pp 2-8 (Battlefield Operating Systems) through 2-29, pp 4-6 (Organization) through 4-15 (Future Battlefield Command Centers), pp 5-7 (Forms of Maneuver) through 5-10 (Infiltration). pp 6-2 (Forms of Defense) through 6-7 (Reserve Operations). and chap 7.
 - (c) FM 71-100, pp 6-2 (Delay) through 6-5 (Retirement), and appendix A.

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- (d) FM 63-3, pp 1-17 (COSCOM Support Organization) through 1-39 (Captured or Found Material), annex B, and annex C.
 - (e) FM 6-20-10, pp 4-5 (Targeting Methodology) through 4-10 (assess).
 - (f) Enclosure D to Appendix I, Logistics Worksheets, Lesson 4.
 - (g) Appendix 3, Advance Sheet, Lesson 4.
- (2) *Review.* FM 100-15, pp 15-12 through 15-16 (Rear Operations)
- (3) *Study Questions.* Answer the following questions.
- (a) Compare and contrast the forms of maneuver.
 - (b) Explain the forms of tactical offense.
 - (c) Describe the defensive patterns employed by corps and divisions. Describe the factors that cause a corps to conduct a mobile defense. Discuss the role of the striking force.
 - (d) Describe the forms of reconnaissance
 - (e) What are the differences between screen, guard, and cover forms of security operations?
 - (f) Explain the types of retrograde operations
 - (g) Explain how reserves are committed in the close fight and differentiate between a committed and uncommitted reserve.
 - (h) Describe capabilities and demonstrate optimum positioning for selected corps-level organizations, to include the armored cavalry regiment (ACR), armored and mechanized infantry divisions, aviation brigade, corps artillery, engineer brigade, military intelligence (MI) brigade, air defense brigade, and corps support command (COSCOM).
 - (i) Describe capabilities and demonstrate optimum positioning for selected division-level organizations, to include divisional cavalry squadron, maneuver brigades, division artillery, aviation brigade, air defense battalion, MI battalion, engineer brigade, chemical company, and division support command (DISCOM).
 - (j) Where would you locate the TAC, main, and rear command posts (CPs) for the corps and divisions?
 - (k) Explain D³A application in deep operations.
 - (l) What are the lethal and non-lethal capabilities of the corps to target, track, deliver, and conduct battle damage assessment (BDA) against deep high-payoff targets?
 - (m) How do we sustain deep operations?

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- (n) Determine CSS considerations for corps and division close operations

c. Third requirement: Prepare to analyze and discuss corps and division operations concepts by determining optimum positioning of corps assets and interrelating the battlefield operating systems during rear operations.

(1) *Head*

- (a) FM 100-5, pp 7-13 (Rear Operations) through 7-14, pp 9-5 (Rear Operations) through 9-6.
- (b) FM 100-15, pp 2-7 (Rear Operations) through 2-8, and appendix C.
- (c) FM 71-100, pp 1-10 (Organization of a Division) through 1-16 (Divisional Chemical Company), and pp 2-15 (Rear Operations) through 2-18 (Security).
- (d) FM 63-3, pp 2-1 (COSCOM Command and Control of Support Operations) through 2-14 (Corps Rear Area Situation Map).
- (e) FM 6-20-10, pp 4-8 (Targeting in Support of Rear Operations) through 4-10 (Assess).
- (f) FM 63-3, pp 1-6 (Corps Area of Operations).

(2) *Review*

- (a) FM 100-5, pp 6-3 (Battlefield Organization) through 6-15 (Rear Operations)
- (b) FM 100-15, pp 1-5 (Organization of the Corps) through 1-11 (COSCOM), and 4-12 (Rear Command Post) through 4-15 (Rear CP CSS Cell).
- (c) ST 63-1, chapter 2 through chapter 9.
- (d) ST 101-6, Appendices E, F, and G.
- (e) Appendix 1, 2 and 3, Advance Sheet, Lesson 4.

(3) *Study Questions.*

- (a) What is the purpose of rear operations?
- (b) Describe corps and division terrain management responsibilities
- (c) Explain how corps and divisions organize for rear area security against level I, II, and III threats.
- (d) Compare corps and division assets to protect rear areas against air, tactical ballistic missile and chemical threats.
- (e) Explain how corps troops receive support while operating within the corps and division rear.

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- (f) Describe capabilities of and demonstrate optimum positioning for selected corps organizations, to include the mechanized and armored divisions, aviation brigade, corps artillery, military intelligence brigade, engineer brigade, air defense artillery brigade, signal brigade, chemical brigade, military police brigade, civil affairs brigade, tactical psychological operations battalion, personnel group, finance group, and COSCOM within the corps rear.
- (g) Describe the capabilities of and demonstrate optimum positioning for selected division organizations, including the aviation brigade, engineer brigade, air defense artillery battalion, military intelligence battalion, signal battalion, military police company, chemical company, and DISCOM within the division rear.
- (h) Explain the relationship between the corps G4 and COSCOM commander. Explain the relationship between the division G4 and the DISCOM commander.
- (i) Explain how the corps rear CP and COSCOM headquarters (HQ) interface with rear area operating centers (RAOCs), base clusters, and bases.

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COMBAT OPERATIONS**Lesson 5. Subcourse Examination****SCOPE**

This examination covers the material included in TLOs A and B and presented during the subcourse. The examination will measure how well you understand the material. It consists of multiple-choice, multiple-response, and matching items. Exam items focus on your comprehension of tactical concepts and principles rather than on your ability to memorize definitions or look up answers. The examples you have thought about and the practical exercises you have completed are similar to what you will see on the exam. It should take you approximately two hours to complete the exam.

ADVANCE PREPARATION

1. Review your notes and the material presented in the Advance Book for S310A. Pay particular attention to any notes you made and your practical exercise solutions.
2. Review study assignments and requirements as necessary. Don't review to memorize. The exam focuses on your comprehension of principles and concepts. **Remember, the exam is open book.**

RESTRICTIONS

1. Possession or use of old or new CGSOC examinations and old or new CGSOC solution-discussion booklets is prohibited.
2. Discussion of examination questions between students before or during the completion of this examination is considered collaboration and is not authorized.
3. Unauthorized assistance in conjunction with this examination is not permitted

COMBAT OPERATIONS**GLOSSARY**

35MM	class III, class V, medical. and maintenance
A ² C ²	Army, airspace command and control
AA	antiaircraft: assembly area
AASLT	air assault
abn	airborne
ACA	airspace control authority
ACC	air component commander
acft	aircraft
acq	acquisition
ACR	armored cavalry regiment
ADA	air defense artillery
ADCOORD	air defense coordinator
adrp	airdrop
AFARN	Air Force Air Request Net
AGOS	air-ground operations system
AGRA	army group rocket artillery
AI	air interdiction: area of interest
AIRSUPREQ	air support request
ALO	air liaison officer
amb	ambulance
AO	area of operations
AOC	air operations center
app	appendix
arty	artillery
ASL	authorized stockage list
aslt	assault
ASMB	area support medical battalion
ASOC	air support operations center
ASP	ammunition supply point
AT	antitank
ATACMS	Army Tactical Missile System
atk	attack
ATMCT	air traffic movement control team
ATO	air tasking order
ATP	ammunition transfer point
ATS	air traffic services
aug	augmentation
AVIM	aviation intermediate maintenance
avn	aviation
AWACS	Airborne Warning and Control System
BCE	battlefield coordination element
BDA	battle damage assessment
BDAR	battle damage assessment and repair
bde	brigade

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BFV	Bradley fighting vehicle
BHL	battle handover line
BIDS	Biological Integrated Detection System
BMCT	beginning morning civil twilight
BMNT	beginning morning nautical twilight
bn	battalion
BOS	battlefield operating system
bot	bottle
brg	bridge
BSFV	Bradley Stinger fighting vehicle
btry	battery
C ²	command and control
C ² SRS	command and control strength reporting system
C ² W	command and control warfare
C ³	command, control, and communications
C ⁴ ISR	command, control, communications, computers, intelligence, surveillance, and
C ⁴ ISR 1	reconnaissance
CA	civil affairs
CAA	combined arms army
CAB	command aviation battalion
CAS	close air support
cav	cavalry
cbt	combat
CCIR	commander's critical information requirements
CCL	combat-configured load
CCM	cross-country mobility
CF	covering force
CFFZ	call-for-fire zone
CFL	coordinated fire line
cgo	cargo
CGS	corps support group
CGSC	Command and General Staff College
CGSOC	Command and General Staff Officer Course
CGSS	Command and General Staff School
ch	change; changing
chap	chapter
chg	charge; charging
CHS	combat health support
CINC	commander in chief
CINCFORCENT	Commander in Chief, United States Forces, Centralia
cml	chemical
cntnr	container
co	company
COA	course of action
coll	collection
COMSEC	communications security
CONPLAN	contingency plan

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CONUS	continental United States
conv	conventional
COSCOM	corps support command
CP	command post
CRC	control and reporting system
CRE	control and reporting element
crypto	cryptographic
CS	combat support
CSAB	combat support aviation battalion
CSB	combat support battalion
CSC	combat stress control
CSG	corps support group
CSH	combat support hospital
CSR	controlled supply rate
CSS	combat service support
CTAC	Center for Army Tactics
CTAPS	Contingency Theater Air Control System (TACS) Automated Planning System
CTF	Centralian Territorial Force
D ³ A	decide-detect-deliver-assess
DA	Department of the Army; direct action
DAG	division artillery group
DAO	division ammunition officer
DASB	division aviation support battalion
DD	duration of solar darkness
DDMP	deliberate decisionmaking process
decon	decontamination
dent	dental
det	detachment
DF	direction-finding
DISCOM	division support command
div	division
DIVARTY	division artillery
DIVEN	division engineer
DLRO	Department of Logistics and Resourcing Operations
DMMC	division materiel management center
DMOC	division medical operations center
DNRS	Directorate of Nonresident Studies
DOCC	deep operations control cell
DOD	Department of Defense
DP	decision point
DPICM	dual purpose, improved, conventional munition
DPU	data processing unit
DS	direct support
DZ	drop zone
EA	engagement area
EAC	echelons above corps
EECT	ending evening civil twilight

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EEFI	essential elements of friendly information
EENT	ending evening nautical twilight
ELO	enabling learning objective
encl	enclosure
engr	engineer
entom	entomology
EOD	explosive ordnance disposal
EODCT	explosive ordnance disposal control team
equip	equipment
evac	evacuation
EW	electronic warfare
FA	field artillery
FEBA	forward edge of the battle area
FFIR	friendly force information requirements
fin	finance
fld	field
FLOT	forward line of own troops
fltbrg	floatbridge
FM	field manual
FMI	percent of illumination at first moonlight at or after ending evening nautical twilight
FMT	first moonlight at or after ending evening nautical twilight
FRAGO	fragmentary order
FS	fighter squadron
FSB	forward support battalion
FSCC	fire support coordination center
FSCL	fire support coordination line
FSCM	fire support coordinating measure
FSE	fire support element
fr	fighter
fr-bmr	fighter-bomber
FW	fighter wing
fwd	forward
gal	gallon
gd	guard
GDCA	ground alert defensive counter-air
genr	generator
GMRD	guards motorized rifle division
GMRR	guards motorized rifle regiment
GMT	Greenwich Mean Time
gnd	ground
gp	group
GP	general purpose
GS	general support
GTA	guards tank army
GTR	guards tank regiment
HE	high explosive

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hel	helicopter
HHB	headquarters and headquarters battery
HHC	headquarters and headquarters company
HHD	headquarters and headquarters detachment
HHOC	headquarters, headquarters and operations company
HIMAD	high-to-medium-altitude air defense
HM	hours of moonlight
HNH	hours with no moon (total darkness)
HNS	host nation support
how	howitzer
HPT	high-payoff target
HPTL	high-payoff target list
HQ	headquarters
hr	hour
HVT	high-value target
hvy	heavy
IAW	in accordance with
illum	illumination
IMRB	independent motorized rifle brigade
indep	independent
infect	infectious
intep	intercept
IPB	intelligence preparation of the battlefield
ITB	independent tank battalion
JAAT	joint air attack team
JCS	Joint Chiefs of Staff
JFACC	joint force air component commander
JFC	joint force commander
JOC	joint operations center
JTCB	joint targeting coordination board
JTF	joint task force
km	kilometer
lb	pound
LCC	land component commander
lchr	launcher
LCSS	land combat support system
LD	line of departure
LD/LC	line of departure is line of contact
LMI	percent illumination at last moonlight at or before beginning morning nautical twilight
LMT	last moonlight at or before beginning morning twilight
LOC	line of communications
log	logistics
LRS	long-range surveillance
lt	light

LZ	landing zone
MA	mortuary affairs
MACOM	major command
MAFFMS	man, arm, fuel, fix, move, sustain
maint	maintenance
MANPADS	man-portable air defense system
MASH	mobile Army surgical hospital
mat	material
MBA	main battle area
MCC	movement control center
MCO	movement control officer
MCOO	modified combined obstacle overlay
MCP	maintenance collection point
MCS	maneuver control system
MCT	movement control team
mdm	medium
mech	mechanized
mcd	medical
METT-T	mission, enemy, troops, terrain and weather, and time available
MHB	medium helicopter battalion
MI	military intelligence
MLRS	multiple launch rocket system
MMC	materiel maintenance center
MOADS	maneuver-oriented ammunition distribution system
MP	military police
MRB	motorized rifle battalion
MRC	motorized rifle Company
MRD	motorized rifle division
MRL	multiple rocket launcher
MRR	motorized rifle regiment
MRT	movement regulating team
MS	maritime superiority
MSB	main support battalion
msl	missile
MSR	main supply route
MST	maintenance support team
MT	motor transport
mtz	motorized
NAI	named area of interest
NATO	North Atlantic Treaty Organization
NCC	naval component commander
NCF	Northland Central <i>Front</i>
neurosurg	neurosurgery
NICAD	nickel-cadmium
NLT	not later than
NVG	night-vision goggles

obs	obstacle
OCA	offensive counterair
OOTW	operations other than war
op	operation
OPCON	(under the) operational control (of)
OPLAN	operation plan
OPORD	operation order
OPSEC	operations security
ord	ordnance
ORF	operational readiness float
PA	public affairs
para	parachute
PE	practical exercise
perish	perishable
pers	personnel
PIR	priority intelligence requirements
PJE	Program for Joint Education
PL	phase line
PLL	prescribed load list
PLS	palletized loading system
plt	platoon
PM	preventive medicine
POL	petroleum, oil and lubricants
pon	pontoon
pp	pages
prostho	prosthodontics
prot	protection
PSS	personnel service support
PSYOP	psychological operations
QM	quartermaster
R&S	reconnaissance and surveillance
radrel	radio relay
RAG	regimental artillery group
RAOC	rear area operations center
RAP	rocket-assisted projectile
rd	round
REC	radioelectronic combat
RECCE	reconnaissance (Air Force term)
recon	reconnaissance; reconnoiter
regt	regiment
rep	repair
repl	replacement
RFL	restrictive fire line
RISTA	reconnaissance, intelligence, surveillance, and target acquisition
rkt	rocket
ROM	refuel on the move

ROWPU	reverse osmosis water purification unit
RP	release point
RSR	required supply rate
S&S	supply and services
S&T	supply and transport
SA	strategic attack
SAM	surface-to-air missile
sani	sanitation
SATCOM	satellite communications
sety	security
SEAD	suppression of enemy air defenses
SHORAD	short-range air defense
sig	signal
SIGINT	signals intelligence
SITEMP	situation template
SO	special operations
SOCCE	special operations command and control element
SOF	special operations forces
SOP	standing operating procedure
SP	self-propelled
SPF	special purpose forces
SPINS	special instructions section (Air Force term)
spt	support
sqdn	squadron
SRC	standard requirement code
SSM	surface-to-surface missile
SST	system support team
ST	student test
sta	station
STON	short ton
subsist	subsistence
sup	supply
surg	surgery
svc	service
TA	terrain analysis
TAACOM	theater army area command
TAC	tactical (command post)
TACFIRE	Tactical Fire Direction System
TACS	theater air control system
TAI	target area of interest
TALO	theater airlift liaison officer
TASS	Total Army School System
TBD	to be determined
TBM	tactical ballistic missile
TBP	to be published
TCF	tactical combat force
TF	task force

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tgt	target
tk	tank
TLO	terminal learning objective
tm	team
TMT	transportation motor transport
TOC	tactical operations center
TOT	time on target
trans	transport; transportation
trf	transfer
trk	truck
trp	troop
trt	turret
TTP	trailer transfer point
UAV	unmanned aerial vehicle
UBL	unit basic load
UMCP	unit maintenance collection point
USACGSC	United States Army Command and General Staff College
veh	vehicle
vet	veterinary
WARNORD	warning order
WB	white bag; workbook
whl	wheeled
wpn	weapon
WSRO	weapon system replacement operation



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CRS-BK